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OUR RANK AS RUBBER-MANUFACTURERS.

THE constantly-increasing production of crude India-rubber is evidence not to be gainsaid that there has been a corresponding increase in the volume of rubber manufacturers. While some branches of the industry in America have not been particularly active of late, we have been publishing reports from England and the continent of Europe of enlarged plants and an increased production of rubber goods. Both at home and abroad it appears that in many lines the rate of profit has declined, but this fact has only served to incite manufacturers to offset reductions in profits by a greater outturn of goods. Doubtless we shall be able before long to record a more settled condition of the industry, with prices of rubber goods better adjusted to the cost of the crude gum, and with general business conditions more favorable to active buying by consumers, though the margin of profits will remain narrower than in the period of development, when many kinds of products were protected by patents and many secrets of manufacture were successfully guarded. One thing certain is that more rubber goods will be consumed as time advances, instead of fewer, and that, whenever a genuine demand exists for any class of goods, it involves in the end a profit to the producer.

A question well worthy of study by American rubbermen at this time is what is to be the future rank of this country with regard to their industry. The development of the industry in the United States occurred under such circumstances as to entitle us clearly to rank as the leaders in rubber-manufacture. Even after our manufacturers, having supplied to the limit the home demand for rubber goods, went to Europe with their skill and their capital and established factories there for supplying as far as possible the foreign demand, the consumption of crude India-rubber in America continued larger than in all other countries combined. We practically threw away a good existing export trade in rubber goods forty years ago, when some of our people moved across the Atlantic and began manufacturing in new fields. Since 1855 we have seldom exported in any one year one-fourth as many rubber shoes as went abroad from our factories in that year, for the reason that Europe's demands were filled thereafter by factories erected on European soil. Whether, under different management, much of this demand might not have been met from this side of the ocean, is no longer a pertinent question. What remains to be considered is whether the opening for rubber goods which has been developing gradually outside of Europe and the United States is to be filled by the manufacturers of the old world or of the new.

In the whole history of the industry in England her exports of rubber goods never before reached so large a value in the first six months of any year as during the months of January-June, 1896, inclusive. The same thing is true certainly of Germany and of France, and it is believed to be true of the other European countries in which rubber factories exist. These increased exports have not been exchanged between the different countries named, so much as they have gone outside and beyond all of them, into countries which only of late have become important

buyers of rubber goods. While Americans need never hope again to ship rubber goods to England and Germany at such a rate as in the early days of the industry, the non-rubber-manufacturing countries are as open to us as to the factories of Europe. In 1855 we exported 1,014,158 pairs of rubber shoes, and in 1895 only 383,793 pairs, while in many of the intermediate years our shipments were even less. But no other country manufacturing rubber goods having once gained a foothold in the foreign trade, has ever permitted such a falling-off.

It is true that the establishment of factories in England, France, and Germany, as already mentioned,—and largely by American capital,—accounts for the decline in our exports of some lines of rubber goods to Europe. But is that any reason why the demand which has come into existence elsewhere should have been overlooked by Americans and conceded to their foreign competitors? Nowhere else are there such facilities for manufacturing rubber footwear, for instance, as in America; nowhere else is the rubber-footwear industry so stagnant at this time. It must be said, however, to the credit of the rubber-industry in America, that, taking into account all its branches, the exports have been larger during the past year than in any preceding year, and we believe that such exports from this time on will increase rather than diminish. But the fact remains that we have been losing rank of late in respect to the percentage of the world's production of India-rubber consumed in the United States.

IT IS THE PUBLICLY-EXPRESSED OPINION of two of our leading bicycle-manufacturers,—who also make the tires they use,—lately returned from Europe, that the single-tube tires so popular here will become equally so beyond the Atlantic. And why not? If the single-tube tire is the better in one country it is in all, and its general adoption will be only a matter of time. If John Bull's social instincts lead him to desire seclusion when he travels, and if he shuts himself up in a railway carriage where undesirable persons cannot be forced into his company, in preference to using such cars as are used in the United States, that is one thing. But when it comes to tires, every bicyclist will in the end want the conditions most conducive to speed and safety, without unnecessary weight or any trouble that can be avoided in mending punctures. And we believe that no racial, social, political, climatic, or geographical considerations will blind the European, the African, or the Asiatic bicyclist permanently to which is the better class of tire. If it be true, as American manufacturers believe, that the single-tube tire is the better—and their judgment ought to be as good as anybody's—it is not too early for the more enterprising among them to begin cultivating the field for an export trade. Delay may mean the putting of the trade into the hands of foreign manufacturers.

TO ASCRIBE TO THE POLITICAL NEWSPAPERS an important influence on public opinion is to write down the masses of voters in this great country as having a low order of intelligence. A specimen newspaper political argument is afforded by the daily journal claiming the largest circulation in the world, which informs its readers that the recent shutting-down of the rubber-shoe factories was designed (1) as a means of unjustly increasing the prices of shoes to the consumer, and (2) by withholding wages from the operatives, to provide a great corrup-

on fund for the election of a congress pledged to high protection. It may be that the author of this rubbish believes what he says, but even the virtue of honesty is not sufficient to offset such ignorance. No man is obliged to know such things, but an editor who assumes to write so much about the "rubber trust" as the one whom we are quoting should first investigate enough to learn that in every year from the beginning the rubber-shoe factories have had a "shut-down"; that prices for rubber shoes are fixed annually on April 1 and not changed during the season; and that the manufacturers of these goods in America are not now, and never were, interested in having tariff protection against foreign competition.

THE VALUE OF MONEY IN BRAZIL, and in most other rubber-producing countries, is more changeable than the moon, so that the Pará merchant, for instance, never knows at what figure he can afford to buy or sell rubber until he has a cable from London giving the rate of exchange, which is based upon the price of silver bullion. We should soon be in the same position in the United States, in regard to rubber and all other commodities entering into international trade, if we should adopt the silver-money proposition now before the country, and thereby cast off the standard of value sanctioned by the other great commercial nations.

THE CENTRAL FIGURE OF INTEREST in the rubber-manufacturing trade just now is a gentleman who of late has declared himself entirely out of the trade. But he probably is under no obligation to stay out, for which reason there can be no rumor of anything new in rubber but the question rises, "Is Banigan in it?" Meanwhile, if anybody can guess what business Mr. Banigan is planning, that gentleman will doubtless be willing to divide with him.

A NOTED EXPLORER OF RUBBER RIVERS.

AN indefatigable explorer, whose work resulted, indirectly, to the great advantage of the India-rubber trade, was William Chandless, M. A., who died on June 5 in London, England, in which city he had been born nearly sixty-seven years earlier. Being the possessor by inheritance of an ample fortune, he early abandoned the profession of law, for which his family had intended him, and set out to see the less-known parts of the world. After having visited various other portions of South America, he reached Manáos in 1861, after which he was long engaged in exploring the streams in the region of which that city is the geographical and commercial center. At different times he ascended the river Tapajos for 1200 miles from its junction with the Amazon, the river Purús for 1866 miles, and the river Jurua for 1133 miles. His work as a pioneer navigator of these streams alone, including their principal tributaries, covered a distance of not less than 5000 miles. It was largely on account of a paper published by Mr. Chandless on one of his tours of exploration that the Brazilian government granted the decree of December 7, 1866, opening the greater part of the Amazon to the flags of all nations. Mr. Chandless's work has proved of great value to geographical science and to commerce as well, and it particularly deserves notice from the India-rubber trade by reason of the impetus which it gave to the development of rubber-gathering on the now important streams which he was first to bring to the serious notice of the outside world. His papers published by the Royal Geographical Society teem with references to India-rubber forests, of which he was the first to make mention in print.

THE PHILOSOPHY OF THE PNEUMATIC TIRE.

From the New York Sun.

IN the days of sixty-inch wheels, when the rider was perched high up in the air, ready to take a header whenever a more than ordinary obstruction was encountered, it was believed that speed could only be made on wheels of large diameter. When the small-wheeled safeties first came out they were regarded as very suitable for timid old men, who did not care about taking the risk of diving over the steering handle of the older style of bicycle; but for younger men, or for those of racing proclivities they were regarded as wholly unsuited. After a while, however, the pneumatic tires came into use, and it was soon discovered that with these the small-wheeled safeties could be propelled at a much higher velocity than the older style.

The fact that the small wheels can run faster than the large ones has puzzled more than one mind, because it has always been supposed that the larger the wheel the easier it would go. In fact, several years ago, an inventor, who was guided by this view of the case, made a wheel ten or twelve feet in diameter. This machine was so arranged that the rider sat inside of it. On account of its great size it was expected that it would easily make a velocity of a mile a minute. What its actual record was cannot be stated, but its fate was undoubtedly that of many other devices of an equally impracticable character, which in the end find a place in a junk shop.

It having been demonstrated beyond all question that the small wheel safeties would run much faster than the old wheels, those of an inquiring turn of mind began to study up the subject for the purpose of finding an explanation of the seeming paradox. Generally an effort has been made to explain the matter by departing from the well-known laws of nature, and assuming that an extra impetus is given to the wheel by the compressed air within the tire, which, for the purpose of the explanation is supposed to act in an impossible way. Those who have solved the mystery in this manner have assumed that the pressure of the air just behind the point where the tire rests upon the ground, acts as a wedge or pry to push the wheel forward; but if this is true for the pressure behind, why is it not for that in front? And if it is, why will not one action just balance the other? As a matter of fact it will: the pressure within the tire is the same at all points, and therefore that immediately in front of the point of contact with the ground will push the wheel back just as much as that behind will push it forward.

The belief that the air pressure is what causes the wheel to run so easily has been so strong in the minds of some men, that they have devised tires with partitions in them, each partition being provided with a valve that would allow the air to escape forward, but not backward. This arrangement was supposed to be capable of greatly increasing the velocity; but it cannot, as it would not be able to act so as to increase the pressure behind the point in

contact with the ground. That this is so, those who have experimented along this line have undoubtedly discovered by this time, although they still may not be able to understand why it is so. The real reason why a pneumatic tire runs easier than a solid cushion is, that it virtually evens up the track upon which the wheel runs.

The cushion tire being of small diameter, and rather hard, will bear upon a small surface of the dust and therefore will compress it considerably. In addition to this, the rubber being hard will not yield easily, therefore a considerable amount of force must be exerted to compress it at the front end as the wheel moves along. If the speed is very slow this force will not be wholly lost, because at the back end of the surface in contact with the ground the compressed rubber will spring out and thus help to push the wheel along. If the velocity were sufficiently slow the push at the back end would be equal to the force required to compress the rubber at the front end, but if it is not very slow it would not. The reason for this is that the rubber is rather torpid in its action and requires some little time to spring out to its original shape. The result of the two actions is to make the actual path of the wheel up grade even, though the road itself be on a level. The effect of compressing the dust is to throw the point of greatest pressure ahead of the point that is directly under the center of the wheel, and the excess of force required to compress the tire in front over that given back in swelling out to its natural shape behind also has the same effect. The combined action of these two resistances is equivalent to changing the grade of the road so as to make it steeper.

If there is no dust whatever on the road, then the only resistance that must be overcome is that of compressing the rubber. This, at a low rate of speed, will amount to little or nothing, as nearly all of it will be given back by the push of the expanding tire as it leaves the ground. But as the velocity is increased it will begin to be noticeable, and the higher the speed the more it will amount to. From this it is evident that on a perfectly smooth and clean asphaltum road, hard enough to not give under the wheel, a cushion tire should run just as easily as a pneumatic at a very low velocity, but as soon as the velocity is increased it will take more power.

As the pneumatic tire is much more yielding than the solid cushion, it will flatten out and cover more surface. As the surface covered is greater, the compression of the dust will be less, and the layer of packed dirt will be thicker. From this fact alone it is easy to see that the pneumatic tire will run easier on a soft road or on a hard one covered with a thick layer of dust than the cushion, because as the wheel does not sink so deep it does not have to ride up so steep a grade at the front end of the rut.

On a perfectly clean and hard road the pneumatic will run easier also, because the force lost in compressing the

rubber of the cushion tire at the front of the wheel is saved. The pneumatic tire is a thin rubber tube, which is, by comparison with the solid cushion, very elastic. No force worthy of notice is required to compress the front of the tire, as to do this all that is necessary is to displace the air at that point, which practically offers no resistance. The only resistance that has to be overcome by a pneumatic tire on a clean, hard road is the friction of the machine itself, and the almost imperceptible force required to bend the tube as it rolls along. The resistance of the cushion tire under the same conditions is not only the friction of the machine, but also the force, or, at least, a large portion of it, that is required to compress the front end of the tire.

It may be supposed by many that on a clean asphaltum road the gain effected by the greater surface of contact in the pneumatic tire would not amount to very much, but this is very far from correct. No matter how hard the road may be, or how clean, the wheel will always sink into it to a certain extent, and the smaller the surface of contact the further it will sink, and, therefore, the more power will it require to ride out of the rut.

As a proof that even on the hardest kind of smooth road the pneumatic tire will roll easier, it may be mentioned that on railroads it makes a considerable difference in the power required to draw a train whether the rails are of iron or steel. Now steel as everyone knows is harder than iron, but both are so hard that they will sustain the weight of a car wheel without any visible depression below the level of the rail top. The fact, however, that the force required to draw one ton on steel rails is only six pounds, while on iron it is eight, shows conclusively that although the depression of the rail is so slight that it cannot be detected, it is enough greater on iron than on steel to make a difference of twenty-five per cent. in the force required to move a given weight. The six and eight pounds' pull, as stated above, that is necessary to move one ton refers to rails that have been in use long enough to become polished; with new rails the pull is as high as ten or even twelve pounds. This shows that on very smooth roadways a very slight difference in the condition of the surface comparatively will make a very decided difference in the force required to draw the load. As a further proof of this fact it may be said that on street railroads the force required to draw one ton runs all the way from twelve to twenty pounds, the difference being caused wholly by the amount of grit on the rails.

Applying these facts to bicycle wheels it is easy to see that the pneumatic, which spreads out over a greater surface, must necessarily depress it less than the solid cushion which only bears on a narrow ridge; hence the force that must be exerted to propel the wheel will be less with the former.

On rough roads the action of the pneumatic tire is the same. The solid cushion, in passing over the crack between the stones of an ordinary pavement, drops and strikes the corner of the stone ahead, with considerable force. To ride over this the whole weight of the rider must be raised nearly the entire distance, between the position of the wheel when over the depression and that

which it will attain when over the further stone. When it drops off of it on to the next stone ahead the same action is repeated. This not only makes the motion very unpleasant, but also absorbs a considerable power, because in passing over each depression the whole weight has to be lifted. If the lift at each point is, say, one-eighth of an inch, and the distance between points is, say, five inches, the power expended will be equivalent to that required to run up a two-and one-half per cent. grade on a smooth road. With the pneumatic tire the conditions are quite different. The tire will flatten out and cover two or more stones at one time; and on account of its having a much greater bearing, the wheel will not be able to sink into the depressions to the same extent. It will drop somewhat, but nothing like so much as the cushion tire. On this account the jolting is very much reduced, and so is the expenditure of power, the difference in the exertion required to propel wheels with the two different kinds of tires being about equal to the difference in the smoothness or roughness of motion, whichever way you choose to look at it.

As the superiority of the pneumatic tire lies in the fact that it is more easily compressed and springs back to its natural shape quicker than the cushion, and also to the fact that it flattens out under the weight, and covers a greater amount of surface, it naturally follows that the elasticity of the material of which the tube is made and also the pressure of the air within will have a considerable effect upon the ease with which it will run. As to the tube, it may be said that the thinner it is, consistent with strength and durability, and the more elastic the material, the better it will be. A hard, thick tube will absorb so much power in bending in and out as largely if not wholly to offset the gain due to the greater flexibility afforded by the mobility of the compressed air within. As to the air pressure, it will be found that on rough stone pavements or soft dirt roads a reduction of pressure will make the wheel run easier, but on hard smooth roads it will not produce a very noticeable difference. So far as the air pressure alone is concerned it might be said that the lower the better, because one of the reasons why a pneumatic tire runs with less exertion is that it flattens out and covers more ground, and thus prevents the wheel from dropping into every small depression. But as the bending in and out of the tube absorbs power, it is evident that if the pressure is reduced too much the loss occasioned by the extra flattening of the tire will be greater than the gain due to the increased surface in contact with the road. From this it follows that both extremes of pressure will give the poorest results, and that the best will be obtained at some middle point. Where this point is can only be determined by actual trial, as it will differ with different makes of tires and with different weights of riders. On general principles, it may be said that for soft roads a light pressure will give the best results.

Those who desire to become fast riders could improve their speed quite considerably by providing themselves with a pressure gage that would register accurately, and then experiment over a given track with different pressures. They would soon find that at a certain pressure higher

speed could be obtained than at any other. But the pressure that would give the best results on a hard track would not be the best for a soft one. The best pressure for any given road could only be ascertained by actual experiment thereon. The pressure that would reduce the propelling resistance to the lowest point could be determined with great accuracy by using an instrument that would indicate the effort made by the rider when going over the track at full speed, and racers could, no doubt,

lower their time very materially by experimenting with such an instrument. As most of the fast riders are in the employ of large manufacturers who fully realize the benefit to them of record breaking time made on their wheels, and as many of these concerns have engineers of undoubted ability to advise them, it is not at all improbable that in some cases such instruments have been devised and are used, although the fact would be kept secret so as to prevent competitors from using something similar.

A RUBBER-MAN WHO MAY BECOME PRESIDENT.

IT is no new thing, in America at least, for rubber-men to become prominent in public life. The rubber industry here has long been largely in the hands of great corporations, whose interests demand for their successful management the qualities of leadership which are requisite to the proper administration of public affairs of the highest order. It is only natural, therefore, that so many leaders of the rubber industry have become mayors of their respective towns, or filled important legislative positions, or even been elected governors of states. Last month this journal contained an article on a rubber-man who has become particularly active in national politics, as the head of one of the great committees charged with promoting the election of the Republican presidential ticket this year. It may not be known to a majority of the members of the party that one of the names on this ticket—Garrett A. Hobart—is that of a successful rubber manufacturer. It is because such is the fact that a portrait of Mr. Hobart is presented herewith, accompanied by a brief sketch of his busy and successful career.

Garrett A. Hobart, the treasurer of the Bloomingdale Soft Rubber Works (Bloomingdale, N. J.), was born at Long Branch in 1844, and was graduated from Rutgers College before completing his twentieth year. He studied law at Paterson, N. J., with Socrates Tuttle, whose daughter he married. In 1866 he was admitted to the bar and, three years later, he became a counsellor; after having served as a clerk to grand juries and filled other minor offices he became in 1871 city counsel for Paterson and in 1872 counsel to the board of chosen freeholders. In 1873 he was elected to the assembly; in the next year he served as speaker of that body, and a year later he declined a renomination. In 1877 he became a state senator from Passaic county and was reelected by the largest majority that had ever been cast in the county. In 1881-83 he served as president of the senate. In 1894 he was the choice of his party for the United States senate, but that was not a Republican year in New Jersey. Mr. Hobart was long a member of the Republican state committee, serving as chairman from 1880 to 1891. Since 1884 he has been a member of the national Repub-

lican committee, of which body he was, in 1892, elected vice-chairman.

But it has not been as a politician or office-holder that Mr. Hobart has been most active. His capacity for the administration of business trusts was early recognized, and he has been most successful in the satisfactory management and settlement of estates. He was appointed receiver successively of the New Jersey Midland railroad, the Montclair railroad, the Jersey City and Albany line of boats, and the First National Bank of Newark. Early in the present year he became one of the permanent arbitrators of the joint traffic association. Meanwhile he has found time to serve as a director or officer in many corporations, but never as a mere figure-head. He is to-day in the directorate of no less than fifteen banks and transportation and commercial companies, being responsible for the policy of several of them.

One of these concerns is the Bloomingdale Soft Rubber Works, of which Mr. Hobart is treasurer. Mr. Hobart was also for a time identified with the India rubber interest through his relations to the United States Rubber Co., as their counsel in New Jersey.

Mr. Hobart's extensive business and professional activity has brought him into intimate contact with men of affairs generally throughout his district and state, and his characteristics are such as to have appealed

strongly to their support whenever he has been a candidate for official position. It will be seen from even this brief sketch that the man who has been placed upon the ticket with Governor McKinley is neither new nor untried in public affairs, and, should he be fortunate enough to be elected vice-president, no fear need be felt of his being unequal to filling the presidential office itself should any emergency ever make this necessary.

THE Consolidated Stamp Manufacturing Co. have been incorporated under the laws of New York state to manufacture rubber stamps, with \$8000 capital. The directors are J. W. Schmidt and Gertrude Schmidt, of New York city, and Emma Schmidt, of Yonkers.



GARRETT A. HOBART.

(Copyright, 1896, by Doremus, Paterson, N. J.)

THE PRODUCTION AND USE OF DENTAL VULCANITE.

By W. Storer How, D.D.S. (Philadelphia)*

STEEL is hardened by heating it to redness and plunging it in water; it is then gradually reheated to produce the desired temper-color. The process is so apparently simple that almost any one can do it; yet long experience and a high degree of skill are required to properly harden and temper steel.

The vulcanizing process is likewise a simple one, but the production of good dental vulcanite is very unusual, because the art in its seeming simplicity is commonly deemed to require but little thought or skill. It is, however, a great

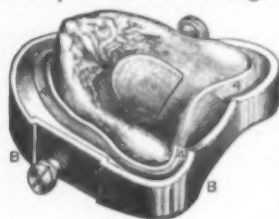


FIG. 1.

mistake to jump to that conclusion, for the making of a fine, strong, solid, odorless vulcanite denture demands careful intelligent attention to many essential details. The plaster model should be smooth and hard. The waxing up is to be done neatly and of the right thickness for the vault-part, with a judicious thickness of the ridge and gum parts, which are commonly much too thick. They therefore get unequally vulcanized, as the thin parts and thick parts will not evenly harden at the same high heat in the same short time. This is a fundamental fact of the first importance, and its general neglect accounts for the porous malodorous dentures so often seen and smelt.

A large flask (the Griswold is the largest and best) should be chosen, and with thick mixed plaster, free from bubbles, the model is set at an angle, as in Figure 1, to insure safety to an overhanging anterior ridge, making the parting line along the waxed gum border. Shellac varnish the smooth plaster investment, and when dried oil the parting surface and pour thick-mixed plaster for the mold, jarring the flask to drive the plaster over all the teeth and wax surfaces. Warm the flask and allow time for the heat to reach and soften the wax, so that the teeth will not be dislodged on separating the flask. Remove the wax and pour boiling water over the model and mold, to melt and wash



FIG. 2.

out the remaining wax. Then with alcohol and a camel's-hair pencil brush the exposed teeth and pin surfaces to dissolve the wax or water film which otherwise will prevent adhesion of the vulcanite; and here is disclosed a common cause of loose teeth, the breaking of

the sections to make a dirty joint. To provide for the surplus rubber a deep circular groove is cut in the mold-part, leaving a narrow rim between the model and the groove, as 4, Figure 1; also shown in Figure 2. This allows a free flow of the rubber until the flask is nearly closed, when the flow is checked by the narrow rim, and then the increased pressure distributed over the inclosed rubber drives it into every part of the mold and increases the density of the resulting vulcanite.

It is best to shellac-varnish the model and mold (taking great care to keep the varnish from the teeth), and when the shellac dries sticky, burnish

tin foil over both model and mold, using a keen edged knife to cut the foil close around the teeth. This work nicely done will, on stripping off the foil

after vulcanization, leave a dense smooth surface, needing very little finishing work. More than that, the surface will be

hard and very resistant to the penetration of the oral fluids, or the retention of salivary or alimentary deposits.

A novel and important function of the Griswold flask, Figure 3, peculiarly adapts it for flasking cases wherein the gum sections or single teeth have been arranged or ground to fit directly upon the ridge of the model. It is obvious that if the parting line is made between the two parts of the common flask in the usual way, leaving the teeth in the

base-part as shown in Figure 4, a complete closure of the flask will probably fracture the thin gum of the section (or the thin neck of the plain tooth) by contact with the ridge of the model. If the flask is not quite closed, then the bite will be lengthened or disarranged. But by locking together the base-part B and center C, Figure 3, the model A and waxed-up teeth B, Figure 5, can be set in that deep flask so that the investing plaster D shall cover the top of the teeth and make the parting-line at the edge of the center-part C. Then the flask-top T may be locked onto the center C, Figure 5, and plaster poured through the half-round opening onto the shellacked and oiled parting surface to form the mold-part E. This subsequently serves as a plunger to drive the rubber R, R, into every crevice around the teeth.

The grooves for the surplus S, S, should be deeper and nearer the teeth than shown in the sectional view, Figure 5. In packing the rubber, there is opportunity for both

the sections to make a dirty joint. To provide for the surplus rubber a deep circular groove is cut in the mold-part, leaving a narrow rim between the model and the groove, as 4, Figure 1; also shown in Figure 2. This allows a free flow of the rubber until the flask is nearly closed, when the flow is checked by the narrow rim, and then the increased pressure distributed over the inclosed rubber drives it into every part of the mold and increases the density of the resulting vulcanite.

It is best to shellac-varnish the model and mold (taking great care to keep the varnish from the teeth), and when the shellac dries sticky, burnish tin foil over both model and mold, using a keen edged knife to cut the foil close around the teeth. This work nicely done will, on stripping off the foil after vulcanization, leave a dense smooth surface, needing very little finishing work. More than that, the surface will be hard and very resistant to the penetration of the oral fluids, or the retention of salivary or alimentary deposits.

A novel and important function of the Griswold flask, Figure 3, peculiarly adapts it for flasking cases wherein the gum sections or single teeth have been arranged or ground to fit directly upon the ridge of the model. It is obvious that if the parting line is made between the two parts of the common flask in the usual way, leaving the teeth in the



FIG. 4.

base-part as shown in Figure 4, a complete closure of the flask will probably fracture the thin gum of the section (or the thin neck of the plain tooth) by contact with the ridge of the model. If the flask is not quite closed, then the bite will be lengthened or disarranged. But by locking together the base-part B and center C, Figure 3, the model A and waxed-up teeth B, Figure 5, can be set in that deep flask so that the investing plaster D shall cover the top of the teeth and make the parting-line at the edge of the center-part C. Then the flask-top T may be locked onto the center C, Figure 5, and plaster poured through the half-round opening onto the shellacked and oiled parting surface to form the mold-part E. This subsequently serves as a plunger to drive the rubber R, R, into every crevice around the teeth.

The grooves for the surplus S, S, should be deeper and nearer the teeth than shown in the sectional view, Figure 5.

In packing the rubber, there is opportunity for both



FIG. 3.

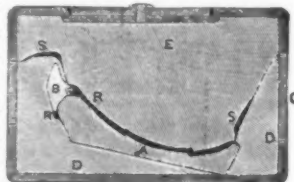


FIG. 5.

* Read before the Mississippi Valley Dental Society, April 18, 1896. Reprinted from *The Dental Cosmos* (Philadelphia).

judgment and skill in cutting suitable pieces, keeping these and the flask-parts warm and clean, and packing the pieces in close contact without much excess of material. The surplus groove should, however, be ample to allow the complete closure of the flask after immersion in very hot water, followed by strong screw-pressure. The closed flask should be securely locked to retain the valuable compressive action for making the vulcanite base dense.

A rubber of well-known purity, strength, color, and vulcanizing heat period is always to be used, but it is a very important fact that the proper heat and time limits are to be varied in accordance with the differing thickness of the several portions of the case in hand; the best results being generally attained by a gradually raised and finally sustained low and long heat. For instance, with a rubber scheduled for one hour at 320° F., a large denture having thin palatal with thick ridge and lip portions will properly require a gradually rising preliminary heat of full forty

minutes, and a final period of an hour and a half at 310° F. The surprising excellence of the hard and tough product will well repay the extra expenditure of time and care.

If found necessary (as it seldom should be) to do considerable filing and scraping in finishing such a denture, no holes or stench-traps will be found in that vulcanite, because intelligent provision has been made for the slow and certain interstitial evolution and elimination of the sulphuretted hydrogen which is often confined within the vulcanite skin to form the foul pores and pockets resulting from the commonly crude and quick process.

A first-class automatically-regulated vulcanizer is preferable, and the best can be none too good considering the professional work to be done. In any case the vulcanizer should be steam tight, then water a quarter of an inch deep will be sufficient, and will not boil into the flask to soften the plaster and otherwise cause injury to the vulcanite.

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

AMONG recent patents issued by the United States Patent Office, embodying applications of India-rubber or Gutta-percha to a greater or less extent, have been the following. It is not practicable here to do more than to note the use of rubber in each case, with sufficient detail to enable those who are interested to decide whether or not to look into any particular patent more fully:

TIRES.

No. 562,811.—Tire for Vehicle Wheels. Samuel S. Elder, Springfield, Mass.

This tire is formed from elastic metal strands so woven as to form a tubular core fitting the wheel rim. The strands are secured by tie wires running round the rim lengthwise. In the second claim the tie wires are provided with open connecting links.

No. 562,869.—Tire for Vehicles. Charles K. Welch, Coventry, England. Assignor to the Pneumatic Tyre Co., Limited, Dublin, Ireland.

Mr. Welch claims, first the combination of an arched cover of India-rubber with the rim of a wheel and having reinforced, nonextensible gripping portions along the outer sides of the rim, but not attached thereto. By claim two, he introduces a textile fabric applied around the exterior of the rim with wires contained in loops in the fabric at the edges of the cover, while in three, he introduces an arch-shaped cover of elastic material formed with two or more recesses or channels on its under side.

No. 562,893.—Pneumatic Tire. Andrew Graff, Brooklyn, N. Y.

This is a double tube tire; the inner tube being formed of canvas cement coated. The outer tube is formed from leather, the tread being sole leather scarfed at its sides to admit of overlapping and cementing so as to form a tube either with or without the aid of additional strips of thinner leather attached to the scarfings of the sole leather. The outer and inner tubes are cemented together. Under other claims the inventor provides for the introduction of a rubber tube within the canvas tube, the canvas tube and outside leathern tube having their edges so folded together and eyeleted as to admit of their being laced on their inner surface.

No. 563,691.—Puncture proof Pneumatic Tire. Abram L. Smith, Brooklyn, N. Y., assignor to the Long Island Rubber and Cycle Co., of New York.

The tires are rendered puncture proof by means of metallic

plates set into pockets formed in a flexible strip of material. The necessary flexibility is gained by using longer and shorter plates, the longer having the shorter placed between their ends but in such a way that the ends of both long and short plates are divided from each other by a portion of the strip in which they are imbedded. The shorter plates are backed up by bridging plates placed so as to overlap the ends of the longer plates.

No. 563,761.—Elastic Steel Tire. Bernard Froehlich, Leipzig, Germany.

In this patent the inventor combines a flexible tire with a series of steel springs set at intervals around the rim of the wheel. This rim has outwardly turned flanges arranged for the purpose of affording a support for the ends of the steel springs which are shaped much like the Greek letter omega. An elastic packing is inserted between the ends of the springs and the rim flanges on which they bed. A metallic strip connects the crowns of the springs together to prevent lateral motion. The flexible tire is not a tube but resembles rather a tube with a piece cut out of it lengthwise, the edges thickened so as to afford means to secure it to the rim of the wheel by metallic rings having intumed edges, one being placed each side of the rim.

No. 563,822.—Bicycle Tire. Henry A. Veazie, New Orleans, La., assignor of one-half to Robert G. Memory, same place.

This tire is built upon the compartment plan. Each compartment is connected with its immediate neighbors in either of two ways. First, by a simple union device of nipples and connecting union bringing the interior of one compartment into direct communication with its adjacent neighbor, or, second, by means of what the inventor calls an inflating device. This novel device consists in connecting the compartments by a thin rubber tube which is in sections, one to each compartment. These tubes are connected at their ends with the uniting device above referred to and each of them moreover has openings in that part of their length running through the compartment. These openings are of such a nature that air may be forced through them to inflate the compartment through which the tube runs, but will prevent the escape of air in case of a leak elsewhere. Means are provided to inflate the tire from a single tubulature. The tire thus built up is enclosed in a covering tire.

No. 563,823.—Wheel Tire. Henry A. Veazie, New Orleans, La., assignor of one-half to Robert G. Memory, same place.

This tire is built up of separate inflatable sections arranged end to end upon the felly of the wheel and a cover arranged over them and lapped over the inner side of the felly, being secured there by a lace. The cover is divided by transverse slits into flaps corresponding in length to the inflatable sections or compartments.

No. 564,114.—Pneumatic Tire. Thos. B. Sloper, Devizes, England.

Mr. Sloper forms his tire with bulges in the restraining material which are preserved by vulcanizing so that the bulges at the sides correspond with depressions in the tread portion while bulges in the tread portion alternate with those in the side portion of the tire and correspond with depressions in the side portion. Mr. Sloper's object being to obtain a tire, such, that when inflated it shall present an approximately smooth and uniform surface the tread portion being in compression, but, when deflated it shall present a wavy or corrugated surface having the tread portion not in compression. Mr. Sloper further arranges for an endless band or cover of approximately equal width at every part, the central portion being corrugated and having a gradually increasing excess of material from the edge at each side to the center of the band. By another claim he describes a saddle-shaped cover restrained circumferentially by wires or inelastic material at its smaller circumference, or selvages molded with an excess of restraining material and India-rubber both in the form of corrugations or waves in the side walls and tread portion so that upon inflation of the tire it causes distortion or compression of the rubber.

No. 564,190.—Pneumatic Tire. Benj. V. Gintz, Akron, Ohio.

A continuous tube reinforced on the inside as to its tread portion by alternate strips of duck and felt having their faces coated with a solution of caoutchouc, ground sponge and flour emery, and backed up by a rubber strip cemented to them and to the inner tube. The cement composition is described as consisting of caoutchouc, ground sponge, flour emery, mixed to the consistency of a thin paste.

No. 564,210.—Pneumatic Tire for Wheels. Jonathan Mills, New York, N. Y., and Wm. H. R. telliff and Fletcher L. Barr, Newark, N. J., assignors to the Punctureless Tire Co., of West Virginia.

This tire belongs to the armored class, the armor consisting of a strip of thin flexible material such as muslin, having narrow overlapping pockets formed in it and extending transversely of the strip. Slips of thin spring metal are enclosed in these pockets loosely so that each slip may have independent freedom of movement. The slips are arranged transversely of the tire and are bent to conform to the circular shape thereof.

No. 564,293.—Pneumatic Tire. John F. Sieberling, Akron, Ohio.

Built up of two tubes, the outer one circular in cross section the inner one being a segment of a circle in cross section and having a metallic plate on its flat side and a series of webs extending from inner curved surface and resting on the plate. The object of the webs being to reinforce the tread portion of the tire. By a second claim Mr. Sieberling dispenses with a second inner tube providing a continuous metal plate adapted to receive the thrust of the webs attached to the inner surface of the outer tube, the metal plate being backed up by a rubber diaphragm cemented to the sides of the outer tube on its inside.

No. 561,666.—Evacuating Device for Pneumatic Tires. Henry A. Veazie, New Orleans, La.

The device described is for removing air from a pneumatic tire and comprises a rod, a head at one end of the rod, a wire coiled about the rod, and a tube arranged within the wire coil and receiving the rod and communicating with a passage in the head and an air-pumping device connected to the opposite end of the tube.

No. 564,763.—Inflatable Tire. Anthony Pulbrook, London, England. Patented in France and Belgium.

This is built up of a number of tubes of impervious material placed one within another so as to form laminations with airtight spaces between them. The outer tube has a supply valve opening into the space between it and the next inner tube; the inner tube or tubes have each valves opening inward.

No. 564,808.—Pneumatic Tire for Vehicle Wheels. Chas. K. Welch, Coventry, England, assignor to the Pneumatic Tyre and Booth's Cycle Agency, Dublin, Ireland.

The combination with a tire having inextensible edges of a rim having an exterior channel or groove forming a seat for the tire and of a depth which permits the tire to be worked over into its seat, and a filling for the bottom of the groove. Various means are cited of obtaining the requisite groove for the fastening of the tire.

MECHANICAL GOODS.

No. 562,855.—Hose-coupling. William A. Shaver, Cheboygan, Mich.

This coupling is operated by a clutch device set in action by a lever. The female head has bevelled flanges and the male part has bevelled grooves intended to engage with the same.

No. 562,863.—Spray Nozzle. Charles W. Storm, Elgin, Ill.

The end plate of the nozzle has a circular groove having perforations at the bottom. A second plate with a radial slot may be adjusted over a portion of the groove to make a fan spray, or made to cover it entirely to cut off the flow.

No. 562,963.—Dredger Sleeve. Andrew L. Horner, Seattle, Wash., assignor to the Gutta-percha and Rubber Manufacturing Co., New York.

This sleeve is formed in various ways, the principle being the combination of an inner and outer sleeve, between which the wall of the dredger pipe is inserted. Means are provided for the easy adjustment of the parts together, as the making of the inner sleeve to project a little beyond the edge of the outer. A shoulder upon the inside of the outer sleeve forms the bottom of the annular space fitted to take the dredger pipe.

No. 563,898.—Hose coupling. Emilius F. Wallace, Syracuse, N. Y.

The coupling section contains a valve reciprocally mounted. An arm on the valve stem is connected by a link with a slide in the coupling body, so that when the slide is moved outwardly the valve is closed and when moved inwardly it is opened.

No. 563,630.—Nozzle. Daniel W. Webster, Philadelphia, Pa., assignor to Joseph Parker Camp, Trustee.

The combination of an outwardly tapered mouth containing a hollow conical deflector, the whole so arranged as to be completely within the nozzle mouth and dividing the stream of water in such a way as to form two sheets of water with a sheet of air between them, thus forming a shield or screen protecting the operator, as for instance a fireman, from the excessive heat as in a fire. The nozzle has a clear and unobstructed interior back of the deflecting arrangements. The inner and outer sleeves may be vulcanized together except for that portion of their length where the annular space is left for the introduction of the dredger pipe. The inner sleeve may be more flexible than the outer.

ELECTRICAL.

No. 562,806.—Conduit for Electrical Conductors. James F. Cummins, Detroit, Mich., assignor of two-thirds to Charles H. Freeman and William C. Yawkey of the same place.

This conduit has an outer metallic casing lined with an insulating compound formed from fibrous material in two similar sections, rendered waterproof and having their edges so formed as to interlock. A second claim provides for the insertion of an elastic compound between the interlocking edges above referred to.

No. 563,273.—Means for Insulating Electric Conductors. Theodore Guilleaume, Mulheim-on-the-Rhine, Germany.

This invention aims at the insulating of an electric conductor by inclosing it within a twisted angular tube of non-conducting

material. The twisting of the angular tube forms alternate ridges and hollows (some idea of what is meant may be got from twisting a strap). The conductor touches the insulating tube only at the ridges. A folding or forming instrument is also the subject of this patent, such instrument being used in the production of the air-insulated electric conductors referred to.

No. 563,274.—Electric Cable. Theodore Guilleaume, Mülheim-on-the-Rhine, Germany.

Covers the insulating of an electric cable by means of ground or grated vegetable fiber or bark either in a natural state or saturated with an insulating substance. The vegetable fiber, etc., is retained in place by means of a braided or tubular covering.

No. 564,174.—Armored Insulating Conduit. Russell T. Ellwell, Hyde Park, Mass., assignor of one-half to Amanda Longer, Boston, Mass.

This conduit consists of an outer metallic armor tube, an inclosed insulating tube capable of being bent without breaking and an interposed layer of some cement-like substance, water resisting and uniting the two tubes one to the other. Mr. Ellwell forms his insulating tube of hard-rubber composition, but vulcanizes it only so far as to render it capable of being bent without fracture and yet stiff enough to retain its shape when bent.

DRUGGISTS' AND STATIONERS' SUNDRIES.

No. 562,842.—Fountain Pen. Verne E. Minich, Paola, Kansas.

Mr. Minich uses a short yielding section in the pen barrel, with means for compressing the short yielding section, consisting of a tubular feed bar. The second claim provides means for recharging the pen with ink by means of a socket at the upper end of the pen barrel, into which a plug, perforated diagonally, may be screwed. A rubber bulb may be fitted over the plug and by its means the pen refilled through the feed bar.

No. 563,429.—Ice Cushion. Albert A. Stoll, Louisville, Ky.

Mr. Stoll forms his ice cushion in a crescent shape. The ends of the crescent have supply openings and there are two flexible drainage tubes, one on each side of the middle portion of the crescent.

No. 563,645.—Liquid Distributing Device. Louis W. Bitting, Philadelphia, Pa.

The device is made in one or in two parts. A container or a container with its attendant reservoir or support. The container is a tube or vessel, closed at its lower end by a plug of porous material. It has a rib running round it, formed from the wall of the tube or vessel and so arranged that if the container be laid upon a horizontal surface, like a table, for instance, the container will rest upon its closed end and the rib keeping the plugged end elevated, so as to avoid loss of the liquid. The second part is a vessel arranged to act as a support and a reservoir to the first.

No. 564,178.—Finger rest for Penholders. John T. Ahrens, Wilmington, Del., assignor of one-half to Joseph N. Harman and Robt. C. Harman, same place.

Consists in a rubber sleeve, solid or skeleton flanged at its lower end and provided with flat fins or ribs tapering from the flange upwardly, the fins being adapted to be engaged by the fingers, serving as guides or rests therefor and to prevent them from slipping.

HARD RUBBER.

No. 564,460.—Comb. Heinrich Traun, Hamburg, Germany.

A hard rubber comb and a bow to protect it as when carried in the pocket. The comb and guarding bow are connected at their ends by pivots longitudinal of the comb so that the two parts open something like a book.

CLOTHING.

No. 562,943.—Combined Dress Facing and Skirt Binding. Aaron M. Weber, Oshkosh, Wis.

This dress facing is made of waterproofed cloth cut bias having

a folded strip or binding secured to the outer side of the facing so that its free edges are flush with the lower edge of the same. A narrow tape is also provided at the upper and inner edge of the facing.

No. 562,992.—Skirt binding. Aaron M. Weber, Oshkosh, Wis.

A skirt binding comprising a strip of dress goods covered on one face with waterproofed material. The strip is folded lengthwise so as to bring the waterproofed material to the inner side, and a non-elastic reinforcing tape secured between the edges of the strip to prevent its stretching, and an attaching strip or facing secured to one of the outer faces of the folded strip.

MISCELLANEOUS.

No. 563,817.—Hat-Sweat. Joseph E. Frick and Charles H. Stoner, Fremont, Nebr.

By their first claim they patent a sweat-band for hats having a series of separated but communicating air chambers and means to inflate the band. In their second claim they provide for the greater width and distance apart at the sides of the head and narrower and closer together at the ends.

No. 562,985.—Saddle. Howard W. Lester, East Hartford, Conn., assignor to Frederick C. Beckwell, Hartford, Conn.

A saddle consisting of a thin metal base formed with up-turned edges to approximate the shape of the completed seat and with perforations through the base. The base is provided with means of attachment to a vehicle, and a plastic material molded to form upon the upper surface between the upturned edges of the base and passing through the perforations in the base. In the second claim broken cork is indicated as being used in mixture with the plastic material.

No. 563,001.—Elastic Cord and method of making same. Alfred M. Zeigler, Boston, Mass.

The cord is formed of a core and its covering of fibrous material. The core is reduced in elasticity at intervals by non-elastic material adhering thereto. This non-elastic material may be incorporated with the substance of the core and vulcanized with it. Or the elastic cord may be formed by preparing a sheet of elastic material by laying transverse strips of non-elastic material upon it, incorporating the strips with the elastic sheet by pressure, vulcanizing and afterwards cutting strips from the sheet which may be covered with a covering of fibrous material.

No. 563,163.—Key for Type-writing Machines. Robt. S. Graham and William B. Savell, Newark, N. J., assignors to the Typewriter Cushion Key Co., same place.

This consists of a key-cushion, containing an internal air space beneath, substantially the middle of the surface receiving the touch of the finger, and provided with an exterior projection adapted to interlock with an inward projection; and a key-cushion holder containing an upright member with a flange turned horizontally and downward so as to hold the yielding material of the key-cushion. The flange may be serrated to afford a better grip. The walls of the key-cushion forming the air space are reinforced at their lower part. There is an external band overlapping both the cushion and the key exteriorly. Another claim is for a key-cushion having an exterior projection and a band provided interiorly with a projection adapted to interlock with the projection on the cushion. The body of the band projects below the cushion so as to be adapted to fit onto a key.

No. 563,164.—Article Consisting of Inlaid Soft Rubber and process of producing same. Robt. S. Graham and William B. Savell, Newark, N. J., assignors to the Typewriter Cushion Key Co. of same place.

As an article of manufacture, a soft rubber article having an inlaid character of soft rubber united by vulcanization; the article and its character remaining soft and flexible after vulcanization. In the process of manufacture the character to be inlaid is formed of partially vulcanized rubber. The character

being applied to the article of soft rubber and subjected to pressure is then vulcanized to a degree sufficient to unite the two and leave them soft and flexible.

No. 563,287.—Toy Balloon. William S. Lane and Jas. E. Cooney, Central Falls, R. I.

A rubber balloon combined with a flexible tubular valve that is flattened at its inner end. Both balloon and valve are stretched over one end of a suitable tube, so that the inner end of the valve comes near the neck of the balloon where pressure as of the finger and thumb may be applied to it so allowing the air to escape in controlled manner.

No. 569,358.—Crutch. George D. Burdick, Madison, Wis.

Mr. Burdick's invention consists in the making and applying an inflatable cushion to a crutch head. The cushion has sockets, formed in one piece with itself, adapted to slip on the ends of the crutch head.

No. 563,403.—Billiard Chalk Holder. Frank V. Noyes, Boston, Mass.

This chalk holder has elastic sides to retain the chalk block. In the bottom of the holder is a depression serving as a pneumatic cushion when the chalk is inserted in the holder. Longitudinal cushions are provided at and extend from the corners of the side walls.

No. 564,323.—Rubber Cap for Axle Nuts. Jehiel F. Wynkoop, Muscatine, Iowa.

The combination with a nut having a plano-convex flange at its inner end and provided with wrench engaging surfaces, and its corners roughened, of a soft rubber cap partially inclosing and covering the nut whose roughened corners hold it in place. The cap has an annular rabbet at its inner end so as to inclose the flange of the nut.

No. 564,839.—Artificial Fish Bait. Ernest F. Pfeuger, Akron, Ohio.

This is formed having a flexible body portion coated with an adhesive paint or composition containing rubber; over this is a coating of luminous material.

TRADE-MARKS.

No. 28,574.—Yielding or Pneumatic Tires. Boston Woven Hose and Rubber Co., Boston, Mass.

Essential feature a red or reddish mark having a shape restricted within oblong limits.

No. 28,517.—Yielding or Pneumatic Tires. Revere Rubber Co., Boston, Mass.

Essential feature the letters "S. S. T."

No. 28,518.—Pneumatic Tires for Bicycles and other vehicles. Humber & Company, America, Limited, Westborough, Mass.

Essential feature: A series of stripes having contrasting colors upon a pneumatic tire.

No. 28,648.—Preparat on to Repair Ruptures or Punctures in Pneumatic Tires. The Little Joe Wiesenfeld Co., Baltimore, Md. Filed June 11, 1896.

Essential feature, the coined and arbitrarily-employed word "Puncturekure."

DESIGN PATENTS.

No. 25,765.—Cement Kettle. Fred W. Morgan, Chicago, Ill.

Showing a basin like reservoir with a section having an axis longer than the other. The reservoir has a flaring base and contains a wheel whose bearings are in the sides of the kettle.

No. 25,709.—Nursing Nipple. Samuel Roscoe King, Providence, R. I.

No. 25,725.—Bicycle Saddle. William I. Bunker, La Grange, Ill.

No. 72,254.—Bicycle Saddle. Richard O. Barler, Chicago, Ill.

RANDOM NOTES FROM PARÁ.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Dr. Lauro Sodré, the governor of Pará, has addressed the following letter to the president and members of the chamber of commerce of this city:

"I have the pleasure of remitting to you the enclosed number of the *Diário Oficial*, in which is published the *officio* [official letter] of the minister plenipotentiary of Brazil, at St. Petersburg, reminding me of the convenience of establishing in this state an early direct rubber trade with Russia, and of the

advantages which Pará would reap from such exportation to that country where several important factories exist for its consumption. As it appears to me that whatever initiatory movement in this sense will be of great utility, I trust that you will take this subject into due consideration, making it known to the principal exporting houses of Pará, which through their government can obtain any information or services from the Brazilian legation at St. Petersburg."

Specimens of India-rubber have been shown here recently from the municipality of Maranguape, in Ceará, prepared from the *Hancornia speciosa*, by the same process as that employed by the rubber gatherers of Pará,—i. e., by smoking.

Some dissatisfaction is expressed here because the cable rates from Pará to Manáos are higher than by the Western and Brazilian lines to Rio. The small volume of business on the former line is evidently overlooked.

The state of Pará has begun to impose a duty of 10 reis per kilogram on India-rubber exports, and a corresponding tax on other products, to provide for the construction of an exchange in this city.

The conservative spirit of this country is shown in the fact that although the population of the city of Pará is 100,000, there are but few type-writing machines here, and not one type-writer of the fair sex.

Messrs. A. Berneaud & Co., of Pará, are having built still another steamer for the navigation of the rivers of this state, which is to bear the name of *Rio Affua*. They expect soon to receive from Glasgow their new steamer the *Cidade de Mandos*.

The state of Pará has signed a contract with a private company formed to build a railroad into the interior of the state of Goyaz, to make loans in advance on sections of 25 kilometers (=15½ miles), at a rate equivalent to about \$5000 in American currency per mile. On the occasion of signing the contract the advance on the first section, amounting to 375,000 milreis, was paid to the company.

The importation of salt is expected to cease shortly, preparations being well under way for its production at Salinas, in this state.

The number of passengers carried on the Pará tramway line last year was 9,284,542. The number carried in 1886 was only 2,206,510.

The Pará zoölogical gardens contain 117 native live animals, representing eighty-four species.

The governor of Amazonas has asked the government to admit free of duty the material needed by the Manáos Electric Light Co., for lighting the city and the theater. This company is controlled by members of the India-rubber trade in New York.

The new governor of Amazonas, Dr. Fileto Pires Ferreira, began the discharge of his official duties on July 23. The city of Manáos is improving at a rapid rate. On July 19 the new public garden there was formally opened. It contains a beautiful monumental fountain and other works of art of merit. [A note in a London journal states that, with the accession to office of Dr. Ferreira, Amazonas had two governors and two legislatures, each claiming to be the rightful one.—THE EDITOR.]

The intrepid explorer Henri Coudreau writes from the upper regions of the little-known Xingu river of the existence there of rubber forests of incalculable wealth, which have been as yet scarcely penetrated. The country is really beautiful, he writes, with a good climate, but it is sparsely settled, and has a hard name on account of the savage character of the Indian tribes—the Carajas and Assurinias.

GRACIO PARÁ.

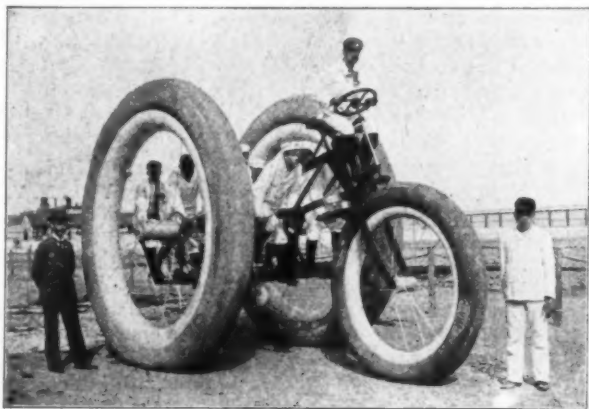
Pará, Brazil, August 8, 1896.

NEW GOODS AND SPECIALTIES.

A NEW tire that has recently been put on the market by a firm who have long been studying the tire question, is what is known as the Chase Tire. In their announcement, the manufacturers say, "While it may be impossible to make an absolutely non-puncturable tire when ridden over a broad-axe or adze, yet we believe we can demonstrate to bicycle riders that it is possible to make a tire that is practically non-puncturable, and still have the requisite lightness and elasticity desirable for the ease, speed and comfort of the rider." The Chase tire has also the peculiarity of possessing a granular tread-surface, which allows the rider, so it is claimed, to ride with perfect safety and no loss of speed, over wet macadam and asphalt. The Chase Tires are cured in an open heat, and are made of the best material that can be secured. Manufactured by L. C. Chase & Co., Boston, New York and Chicago.

THREE GIANT PNEUMATIC TIRES.

WHAT is undoubtedly the largest tricycle in the world, mounted on the biggest pneumatic tires ever built, is the machine shown in the accompanying illustration. This tricycle takes eight men to propel it. It stands twice as high as an or-

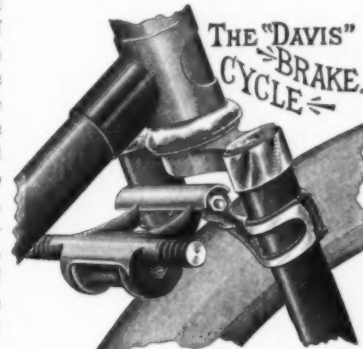


dinary man, the seats of the riders are about six feet above the ground, while the man who steers it is perched high above his companions in a sort of crow's nest. In spite of the size of the machine it has an appearance of lightness due to the slender steel rods used in its construction, which seem hardly sufficient to support the weight of the riders. The building of this machine was a feat of mechanical skill that has rarely been excelled. The day after it was suggested, Mr. John De Wolf drafted the plan and three days after the machine was not only completed but was successfully running at a bicycle meet near Boston. Of course to a rubber man, the interesting part of the machine are the huge pneumatic tires. These when inflated are 11 feet in diameter, the cross section of the tires being 16 inches. The small or guiding wheel in front has a diameter of six feet with a cross section of nine inches. The two large tires are of the natural rubber color, while the smaller tire is of the "Floxiene" color which at once stamps it as being a product of the manufacturers of the well known Vim tires. The curious thing about these three tires is that they are exactly the same in construction as the regular Vim tire even to the pebble tread. The whole machine with its crew of men

weighs about a ton and a quarter. It was built complete at the works of the Boston Woven Hose and Rubber Co., Cambridgeport, Mass., and is used by them as an advertising novelty at the various bicycle meets.

THE DAVIS CYCLE BRAKE.

THIS brake has one very strong claim for attention in that the surface which comes in contact with the tire instead of being a drag that will wear away the tread of the tire, is a friction rubber roller. The principle appears to be entirely new in tire brakes, it being a solid rubber roller fitted into a hood or canopy. When the brake is applied, the roller is forced against the face of the hood, causing the friction. In this way the roller does not rub against the tire, and therefore will not wear or tear it. Manufactured by the Davis Mfg. Co., 27 Wright's Block, Indianapolis, Ind.

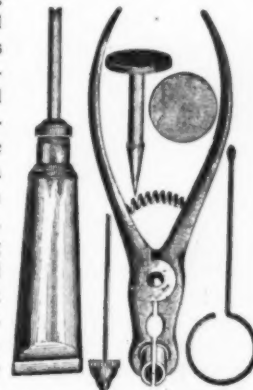


A RUBBER HANDLE BAR BUFFER.

A VERY neat little appliance for the cyclist is a broad ring of India-rubber, molded to fit over the frame of the bicycle, at the point where the handle bars in swinging strike the light tubing and dent it or mar the enamel. The buffer is a very pretty piece of molded work corrugated on the outside. It fits over the tubing tightly and may be made in any color desired. Manufactured by the Nodera Mfg. Co., Cleveland, Ohio.

THE MINUTE REPAIR KIT.

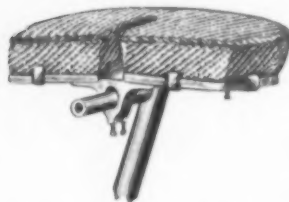
THIS is a most ingenious tool, and its simplicity, and the ease and quickness with which it is operated even by a novice, is marvellous. It will repair equally well either an inner tube or hose pipe tire, and that too without removing either from the wheel. It does not cut and impair the strength of the fabric, but simply forces and holds the threads apart, while the patch is inserted and cemented, after which the threads are allowed to resume their normal positions. The cemented patch has then effected a substantial repair that can scarcely be detected, the patch acting like a brace to keep the puncture from spreading. By the Minute system, the repair is not made with a plug which is liable to become displaced in use when the tire is inflated, but is made with a flat disc of pure rubber, strengthened by a cloth backing, and is placed on the inside or inner wall of the tube or tire. Manufactured by the New York Bicycle Equipment Co., 257 Broadway, New York.



A RUBBER SKULL CAP FOR SKATERS.

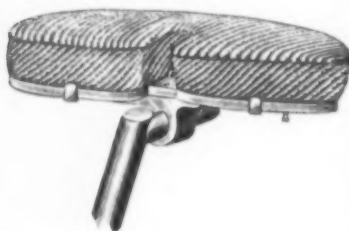
WHAT has been called a very humane invention is a cap which has a pneumatic extension covering the back of the head, and which is designed to save beginners in the art of skating from cracking their skulls on the ice. This rubber cap is inflated and fixed by means of a light strap about the head. When folded it takes up very little room. The idea is the invention of R. Kindermann, Schluckenau, Bohemia.

THE PERFECTION PNEUMATIC CYCLE SEAT.



seat is made in three styles, fits any saddle post, and is adjustable to any angle. This saddle is very easy, is readily inflated to any degree of rigidity, and can be ridden constantly without the slightest inconvenience. The elasticity is secured by its

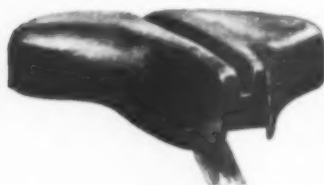
THIS seat is manufactured by a company who are exclusive manufacturers of elastic air goods. The case of the seat is made of laminated fiber, the covering is of the best imported corduroy, mounted with gun metal fittings heavily nicked. The



inner construction, which is a series of stay-compartments affording the rider a natural and easy support without causing the slightest irritation, soreness, or trouble of any kind. Manufactured by the Mechanical Mfg. Co., 146 Franklin street, Boston.

THE MULLER HYGIENIC SADDLE.

EXPLAINED briefly and explicitly, this saddle is made as follows: the base is of three layers of white ash, one-eighth inch in thickness, each running in different directions, veneered together, making a light non-breakable platform. On this is a sponge-rubber pad which is one inch in thick-



ness, nicely formed and hollowed out at the sides to allow of natural movement of the legs without the danger of chafing. The pommel is short. There is a slot one inch wide and $\frac{3}{8}$ -inches deep running the entire length of the saddle to ventilate it and relieve the pressure in the center. The whole is covered with kangaroo calf, having descending flaps on each side to relieve the awkward appearance common to this type of saddle. It has a spring with a clamp adjustment, which permits it to tilt at any angle, and is readily adjusted to any of the various types of saddle-post. Manufactured by the Muller Mfg. Co., 605 W. 39th street, New York.

THE KRIM CYCLIST STORM SUIT.

THIS is a combination of cap, cape, and leggings, made of light weight cloth covered with a light coating of rubber, which is already becoming very popular. It was intended primarily for cyclists' use, but has been found to be of advantage also for tourists, pedestrians, and horseback riders; while letter carriers, teamsters, and messengers find it invaluable in stormy weather. When not in use, the suit takes up very little room, and weighs complete only 24 ounces. Manufactured by Cleve & Krim (Metropolitan Rubber Co.), 49 Summer street, Boston.



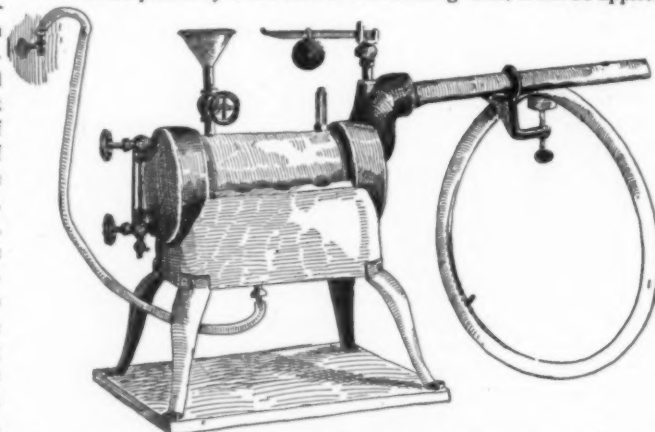
THE SURE STEP HORSE-SHOE.

THIS shoe consists of a steel skeleton, provided with a rubber tread that is specially adapted to grip the ground, and thus secure in all kinds of weather and on all surfaces, a sure foothold for the horse. It has been proved that when wearing this shoe the horse does not slip on ice nor on stone or asphalt pavements. In addition to this it does away with the concussion that is so injurious to horses when traveling over hard roads or pavements. It also deadens the sound of the horse's hoofs, thus doing away with a deal of unpleasant noise. It has been found that this shoe wears longer than the ordinary steel or iron horse-shoe, and that it can be used on any horses from the finest racer or pacer, to the rough and ready freight horse. Manufactured by Fred. W. Hahn, 356 Grand street, New York, N. Y.



THE M. & W. VULCANIZER.

THE illustration shows very plainly a vulcanizer that is used in all the repair work done in the great Morgan & Wright factory at Chicago. The fact that this was designed and built for their own work and found to be practical, is a first class recommendation for the apparatus. In it the steam heat is applied directly to the surface to be vulcanized. The vulcanizer is made for a gas or gasoline burner and while it is made primarily to be used in vulcanizing tires, it can be applied



to any kind of rubber, the surfaces of which can be clamped to the vulcanizing arm. Manufactured by Morgan & Wright, Chicago.

THE SHORT STOP PUNCTURE FILLER.

THIS is a specially prepared compound put up in collapsible tubes each of which contains four ounces of the material or a sufficient amount to charge one tire. These collapsible tubes have a hollow needle at one end which is inserted into the tire, and the filler is then squirted through the needle. The filler dries almost instantly over the punctured part and it is said that it effectually holds it. This may be used either on double or single tube tires and is manufactured by Morley Bros., Saginaw, Mich.

THE DU BOIS CUSHION TIRE. ✓

THE distinctive feature of this new tire for vehicles of every class, light or heavy, is that a continuous band of India-rubber is compressed between the steel tire and the wooden rim of the wheel, said steel tire overlapping and clutching the wood by exterior flanges. The object of this device is to give substantially the advantages of the India-rubber tires hitherto in use, at a lower cost, and without the disadvantages attending the use of rubber tires under some circumstances. In the first place, since the rubber band is not exposed to contact with the road, it will wear indefinitely, especially as its use is expected to add to the durability of the wheel and its steel tire. The rubber band is designed to allow for the shrinkage and expansion of the woodwork, due to dryness or dampness, thus preventing the wheel from rattling, dishing, or becoming rim-bound. In addition to the service rendered to the wheel by this rubber attachment, it receives the impact now given to the axle as a vehicle goes over rough ground, by which the crystallization and resultant breakage of axles are prevented. Among the additional advantages claimed is the absence of plates or bolts for fastening the steel rim to the wheel—this being attained by means of flanges—so that neither the tire nor the rim is weakened by the drilling of holes, as in the case of ordinary tires. Other features to which attention may be called is that the tires may be made of any desired width—at present from $\frac{3}{4}$ inch to 5 inches; they may be applied to any wheel; and the cost is lower than that of ordinary India-rubber tires. Finally, the rubber band renders the tire to a large degree a noiseless one. The patentee of this tire is Howard M. DuBois, long engaged in the manufacture of fine wheels in Philadelphia, and interested, for several years past, in India-rubber tires. For the purpose of introducing the invention—he has organized the Standard Tire Co., with offices at No. 150 Nassau street, New York, and a factory at No. 123 West Thirtieth street. Orders have been received for the new tire for the equipment of wagons in use in several of the municipal departments in New York, while a number of carriage- and wagon-manufacturers have expressed themselves favorably with regard to it.

THE office of the newly-established Costa Rican consulate at Philadelphia is located in the building of the commercial museum in that city, and Consul Niederlein has greatly interested himself in arranging an exhibit of the products of Costa Rica for the museum. Two important items are India-rubber from the *Castilloa elastica* tree, and Chicle, from the *Sapota achras*.



THE JEAN RUBBER CO. STILL IN THE FIELD.

ADVANTAGE has been taken of the remarkable financial success—up to date—of the Dunlop tire concern in England to “boom” in that country every industry having any conceivable relation to bicycles and tires, with a view to “floating” companies with an enormous capitalization. It is not surprising, under such circumstances, that stories should have been started of “the famine in rubber” due to the increasing demand for this material in the tire industry, or that the English public should find itself invited to subscribe to the \$1,000,000 capital of The Rubber Exploration Co., Limited. The chief object of this enterprise—as set forth in a prospectus of such glowing phraseology as to at once suggest the facile hand of General Joseph Marius Jean—is to gather Balata in French Guiana in quantities sufficient to offset any shortage in all other forms of elastic gums, now and forevermore. Before the end of the prospectus the name of General Jean comes to light, with the information that, in addition to retaining the presidency of the Franco-American Rubber Co. (New York), he is willing to sell important concessions in Guiana to the company forming in England, “the field being large enough for a score or two of powerful companies,” and their creation being, in his judgment, “able to advance mutual interests.”

The English company are to start out with 450 square miles of freehold forest land, well stocked with virgin forests of Balata, with cheap transportation, no export duty, and “influential local management,” the latter being vested in General Jean. To quote further from the prospectus, there are Balata and India-rubber (*Hevea*) trees on this property, covering thousands of acres so closely “that from any point you could stop and tap within two hours full-grown trees enough to produce 100 pounds of rubber at the least.” On the creek Toussaint General Jean found “a tract of about 800 acres exclusively populated with rubber trees, so densely grown, however, that you will have to cut down three out of four of them to allow sufficient air and sun to the others.” Writing to the promoters of the English company from New York on May 26, 1896, General Jean made this statement:

The commercial value of Balata rubber is so far above the Pará that our company is unable to fulfill all orders of said rubber, and have neglected all other brands. A Rotterdam firm is booked for fifteen tons a month, the net profit, as per our last shipment, being above \$800 per ton, and prices are going up every day.

It will be noticed that the Rotterdam shipment netted General Jean only about 40 cents profit per pound, but a little thing like that need not discourage intending investors in The Rubber Exploration Co., Limited, for there is also much gold on the land, to be had without work, and valuable timber which has greatly advanced in price since the Cuban war began. There is the “wapa” tree, for instance, “worth on the spot \$25 a log about 25 feet long by $4\frac{1}{2}$ to 5 inches thickness.”

In another section of the prospectus we read that “an offer has already been made by one of the oldest and most influential firms of rubber merchants in Europe (Rotterdam) to take the whole of the Balata and India-rubber produced by this company, at the full ruling market prices.” From the fact that the acceptance of this offer is not announced, it may be inferred that General Jean is awaiting a bid for his entire product at two or three times “the full ruling market prices.”

There is much more in this prospectus calculated to promote the gayety of the India-rubber trade, who may always expect something original and startling when General Joseph Marius Jean gets to work with his six-ply, hand-made, dry-vulcanized, carbolized imagination.

HEARD AND SEEN IN THE TRADE.

SO many bicycle-manufacturers have come to grief in the past month or so, that it has occurred to me to ask whether or not the rubber trade has suffered through having sold tires to them. "The rubber trade has been very heavily caught," said one tire-manufacturer. "I would not care to have the figures known in regard to our own case, but I will admit that we have been almost driven out of the business. We are to-day practically idle because of our business having been crippled by the failures of the bicycle-makers. Being a newer concern than some of the others engaged in making tires, and anxious to gain customers, we probably extended credit with too little caution and for too long periods of the time. We happened thus to get on our books some concerns unable to withstand any sort of depression in business, and in going down they have caused us to suffer."

THE opening of new markets abroad is a subject which has engaged the attention of some of the tire-manufacturers to a considerable extent. The bicycle companies have been very active during a year past in sending samples abroad and in establishing agencies in different countries, with the result that, during the fiscal year ending on June 30, the United States exported bicycles and bicycle parts, sundries, etc., of the value of \$1,898,012. Of this amount \$515,798 is to be credited to the month of June alone. When it is considered that previous to the past year practically no American wheels had been sent abroad, this new branch of export trade may be said to have grown at an important rate. But, as has been intimated already in THE INDIA RUBBER WORLD, all of the American bicycles sent out have not been equipped with tires, and, further, there have been evidences of a prejudice in other countries against the types of tire popular in America.

"I BELIEVE that it will pay to cultivate the export trade in tires," said one manufacturer, "and if times were a little easier now, so that I could draw the money from our business, I would make an active bid for orders in England. That is, up to date, the greatest country for bicycling, outside of the United States, and the place for selling tires is the country where wheels are made. The English still ride for the most part, metallic rims, which make their wheels heavier and more clumsy than our leading types, and they all use the Dunlop style of tire, for which the wooden rims are really not so well adopted. I know that the English are characteristically conservative, and thus not easily influenced to make a change from what they have once adopted, but when Dunlop tires cost more than twice as much as the single-tube tires, and when, with the latter, the wood rims can be used, making lighter wheels possible, I believe that single-tube tires can be introduced with the proper effort. The English, by the way, are not inherently opposed to the single-tube. But they first learned to ride the detachable tire, and liked it, and when the single-tube was first presented to them it was a foreign institution, and therefore naturally viewed with caution. Even then, when the Palmer tire first appeared in England it was received with not a little favor. Had the earlier Palmer tires borne out the claims made for them the situation to-day might have been different, but they were too light, and failed in other respects to such an extent as to make the Englishmen who had experimented with them indisposed to look at another single-tube tire. While we do not regard the Palmer tire as belonging to the single-tube class, as now made

under the Tillinghast patents, 'Single-tube' and 'Palmer' are still synonymous terms in England, and it will take much time and much money to bring the people of England, or any other part of Europe, to give a fair trial to the tires now made in the United States. By the way, I should believe in catering to the tastes of possible foreign buyers as far as possible. For instance, in the weight of tires, I should make a heavier article for export than is demanded here, since the English cyclist does not, like his American cousin, seem to regard speed as the first consideration when a wheel. The Englishman goes out for long runs, through fair weather and foul, over rough country places, perhaps, and out of reach of repair-shops, and he wants a tire upon which he can rely implicitly."

"WHAT do you pay for tire-scrap?" I asked of a junk-dealer in New York, in front of whose extensive shop I noticed a bicycle-tire on top of a heap of rubbish just received.

"At the rate of \$100 a ton for bicycle-tires, and \$75 for old rubbers." [That would make 5 cents and 3¾ cents per pound, respectively—lower than published quotations for scrap, but this dealer sells in turn for higher figures.]

"Do you handle tires by the ton?" I asked.

"By the ton, or the single tire. I buy all that come in." Then, he continued, in answer to more questions: "There's a good demand for them. They're worth more than rubber shoes because there's better gum in them. It was about this time—August—last year that I first began to get old tires along with other rubber scrap that came to me in lots of rags. I looked around and found out what they were worth, and since then I've taken all that I could get of them. There are several big rag-dealers in the city that handle tire-scrap, and plenty of mills ready to grind them up. A big lot of tires comes from the repair shops all over town. Solid rubber tires come in, too, but they are worth only half as much as the pneumatics. Nor are the red pneumatics worth as much as the others."

WHEN I inquired of a leading house in the business of supplying cloths to the mackintosh trade for some points on what was new this season, the manager declared that there was nothing—only the same colors, the same textures, the same figures, the same weights. "This is no time to bring out anything new," I was told; "the conditions of the trade do not warrant it. The principal feature of the waterproof-clothing trade just now is a cutting of prices without resulting sales, and I cannot see how the majority of the firms in the trade are going to get through the year without losing money. I think that it would have been much better, in view of the stocks left over from last winter, for the manufacturers to have shut down during the spring months, and to have made no special inducements to buyers. Instead of this there has been a considerable production of goods and salesmen have been at work all over the country underbidding each other in prices, and yet without making many sales. The dealers didn't want—because they didn't need—the goods then. But when they do need goods they will not be likely to forget the prices offered earlier in the season, so that there is no likelihood of better conditions in prices this year, under any circumstances."

OPINIONS seem divided as to the rubber boot. In reply to a question, a salesman of long experience said that he had seen no falling-off in the demand for rubber boots, although he had

become aware of the growing use of combination boots, composed of felt socks and lumbermen's rubber shoes. He had not handled any of the latter, however. There had been a lessened demand for rubber boots in the winter of 1895-96, but that was chargeable to the weather, and did not indicate to his mind that rubber boots were going out of use. In answer to a similar question an extensive jobber declared that the demand for rubber boots had declined steadily since the introduction of the combination boot. The latter had the advantage in respect to price of at least 50 cents per pair, and was quite as desirable for wear except in cases of exposure to deep water. One thing to be noted in this connection is that, whereas the Woonsocket Rubber Co. formerly operated the Millville mill continuously in the manufacture of boots for their own trade, and each of the other companies also manufactured boots, it is reported that all the boots required by the United States Rubber Co. are to be manufactured hereafter at the Millville mill, and without any increase of its capacity. The Boston Rubber Shoe Co. are still manufacturing a full line of rubber boots.

I HEAR that a certain factory which was rushed with orders last year for a low-priced grade of rubber shoes—orders received by mail and by telegraph from some of the largest jobbers in the country—have begun recently to feel the competition of the United States Rubber Co., who have placed on the market a cheaper shoe than second grade. The owners of the factory referred to, not being disposed to battle single-handed with a corporation backed by \$40,000,000 of capital, have determined to turn right about face, and have sent out samples of a first-grade shoe, to be sold at a slight discount below the prices of the United States Rubber Co. They reason that the big concern cannot afford to cut the prices on high-grade goods in the middle of the season, while they can dispose of enough goods at a slightly lower price to keep their factory busy and make some money.

THE MAN ABOUT TOWN.

A BOOK FOR HARD-RUBBER TURNERS.

THERE has just been published in the German a book entitled "The Complete Turning Trade," intended to be a complete handbook for turners, by R. Stübling. It is intended by the author that the book shall appeal to the interest of and prove of benefit to the manufacturers of hard-rubber goods, in which industry the process of turning plays an important part. The work treats in detail of the various processes and describes every tool used in turning, the completeness of the treatise in this respect being best indicated, perhaps, by the fact that no less than 361 illustrations accompany the text. The illustrations are grouped in a separate book or atlas of folio shape.

RUBBER AT THE RUSSIAN EXHIBITION.

GR EAT efforts have been made throughout Russia to make the Exhibition of all the Russias, now in progress at Nishni-Novgorod, a thoroughly representative undertaking. Everything that the great empire possesses in the way of industry, mining, transportation, and art is here represented. The location itself, though, says the *Gummi-Zeitung* (Dresden), seems not particularly well adapted for an exhibition of such magnitude, as it is too remote from commercial and industrial centers, and St. Petersburg or Moscow would have been preferable. The great number of exhibits gives a true reflection of Russia's industry to-day, which has advanced in many branches, especially so the textile, iron, glass, stearin, and India-rubber industries.

The four existing rubber factories of the great czardom are noticeably represented at this exhibition. First place is taken by the Russian-American India-Rubber Co. (St. Petersburg), who have a tasteful collection of their manufactures. Two columns are composed of about 4000 pairs of rubber shoes of all sizes and shapes. A pyramid of gigantic rubber belts is a testimonial of the capability of the company. Particularly interesting is the representation, in miniature, of their factory site, which has the appearance of a city. In connection with this must be mentioned the attractive representation of all the machinery contained in their plant,—in fact of the whole interior arrangement. They also show the manufacture of rubber shoes in all the various operations. Another department represents the handiwork of the children of workmen, who have been taught in the factory school. The large show case built in the Italian style, of mahogany wood, containing various articles of rubber, such as coats, toys, balls, air-cushions, etc., is an imposing affair. Those who visited the World's Fair at Chicago will have an idea of the appearance of this exhibit.

Adjoining is the exhibit of the Moscow Company for Rubber-Goods Manufacture, which has become of late an affair of no small importance. Judging from the exhibit in Nishni-Novgorod, the continuance of this company seems to be assured. The great size of the exhibit of the St. Petersburg company is set off by the progressiveness of the Moscow concern. Their exhibit is shown in a beautiful pavilion, constructed entirely of hard rubber in true Russian style, which makes a lasting impression on the visitors. The twelve pillars, or columns, are each composed of four parts—base or plinth, shaft, swelling middle piece, and capital. On these pillars rest the cornice and several ornamentations in shield form, in conformity with the requirements of the Russian style. Hard rubber is the material used for everything, being inlaid with hard rubber of harmoniously blending colors. This seems a new departure, and the colors are bright and lively; those of green and red on a dark background are very attractive from the Russian standpoint. The upper part of the pavilion is constructed of wood, covered with rubber stuffs of variegated colors. The entire height of the pavilion is about 30 feet. The floor is covered with a rubber carpet, in the center of which is placed a table of black hard rubber, beautifully inlaid with red and light green hard rubber ornamentation. In glass cases various specialties are displayed. Among these articles are door-knobs, artistically inlaid, and a large collection of rubber shoes, both very ordinary and very fine. Particularly interesting is a group of shoes, the uppers of which are of leather, the trimming of lacquered rubber, and the sole also of rubber. The other articles exhibited, surgical and mechanical, show neat and careful work. The success of the Moscow factory, which is apparent by their exhibit, is convincing proof that competent and able management are a prerequisite to that end. The factory, which four years ago employed not more than 300 persons, now employs 800. The managers of the mechanical department, who have conducted the business for the past four years, are said to be Austrians, the Messrs. Mayer, father and son.

The exhibit of the Russo-French Co. (Provodnick) is located to the right of that of the St. Petersburg company. This company erected a log house in the Russian style, the exterior of which was covered with linoleum. The interior contains showcases filled with a collection of mechanical and surgical goods, as well as with rubber shoes of all descriptions. This factory makes a specialty of linoleum, of which a fine collection was shown. The balance sheet of this concern for the year 1895 shows transactions to the amount of 2,800,000 rubles (= \$1,400,000).

RECENT DEATHS IN THE RUBBER TRADE.

MR. JACOB D. JOSLIN, superintendent of the Globe Rubber Works, Trenton, N. J., died suddenly of heart failure on the afternoon of August 19.

Mr. Joslin was perhaps one of the best known residents of Trenton, particularly among temperance workers.

He was born in New York a little more than sixty-three years ago, and went to Trenton when a young man, being among the pioneers in the rubber industry. Subsequently he went to Jersey City, and from there to Cleveland, Ohio, returning to Trenton in 1876, when he assumed the superintendency of the Star Rubber Works. Four years after, when the Globe Rubber Works were erected, he took charge of that plant, and when the company failed, and the works shut down for a time, he became superintendent of the Hamilton Rubber Co. When S. K. Wilson purchased the Globe plant Mr. Joslin again took charge and has remained there ever since.

Early in life Mr. Joslin became identified with the temperance movement, and when the Prohibition party was organized he threw into the cause all the earnestness of his enthusiastic nature and gave liberally of his time and money to the furtherance of the objects of the party. He has been nominated for several offices on that ticket. Four years ago he was on the Presidential electoral ticket, and two years ago ran for congress in his district. He was also a member of Excelsior Division, No. 4, Sons of Temperance.

He was a member of the First M. E. Church, for many years, and was also a member of Trenton Lodge, No. 5, F. and A. M.; Three-Times-Three Chapter, Royal Arch Masons; South Trenton Lodge, No. 36, I. O. O. F., and Washington Camp, No. 6, P. O. S. of A.

He was twice married, his first wife being Miss Emma Burchell, who died several years ago. Four children survive him as a result of this marriage. Charles A., assistant

superintendent of the Globe Rubber Works; Louis, a law student; Mrs. Charles Applegate, and Miss Clara Joslin. About two years ago he married Mrs. Rella Hurley, who survives him.

Mr. Joslin had been in failing health for more than a year past, but about six months ago the ravages of disease began to make themselves apparent, and heart trouble developed, with the sad result as stated.

He was highly respected by his employes and all who knew him, and was accounted one of the most expert and experienced superintendents in the mechanical rubber line.

CHARLES A. ENSIGN, of Hockanum, near Hartford, Conn., died on August 14 of a combination of troubles. He had been confined to his home for several months. Mr. Ensign was born in December, 1821, and, when a young man, learned the shoemaker's trade. He worked very little at his trade, but took up the rubber-goods business, going to Naugatuck, Conn.,

where he spent a portion of his life as superintendent of one of the rubber factories there. He became very prominent in the business, having taken out many patents, and at the time of his death was receiving royalties on several of these. He was also sent as a member of the legislature from Naugatuck. From there he went to Boston, where he was superintendent of a factory for a number of years, going from there to Hartford about ten years ago. He leaves a wife and two brothers, Owen L. and Elizur R. Ensign, both of Willow Brook. He also leaves one grandchild, Howard Yale Ensign. The honorary bearers at the funeral were: George G. Sill and Theodore Studley, of Hartford; Leonard Fox, and Ralph Risley, of Hockanum. The casket was borne by colored porters. The burial was in the Hockanum cemetery.

JAMES MUNDELL, proprietor of the Mundell Rubber Works (Trenton, N. J.), died on August 15, at his home in Philadelphia, aged about 45 years. He was the oldest son of the late John Mundell, with whom he was long associated in the wholesale shoe business in Philadelphia, under the firm name of John Mundell & Co. He had always enjoyed good health, and died after a brief illness of neuralgia of the heart. He was a married man, popular socially, successful in business, and a prominent Mason.



JACOB D. JOSLIN.

GEORGE ROPES, a well-known and wealthy business man of Boston, died on August 17 at Lincoln, Mass., where he resided, aged about 63 years. Mr. Ropes for many years carried on an extensive trade with Madagascar, Zanzibar, and East Africa, importing India-rubber, ivory, etc., but of late years had devoted more attention to manufacturing. He was treasurer and manager of the Dickinson Ivory Co. (Peterboro, N. H.), a very successful concern. Mr. Ropes was at one

time, and until about twenty-four years ago, a partner of John Bertram, an extensive shipping merchant, whose connection with the India-rubber trade has been detailed in this journal. He owned during his career half a dozen ships, and established houses at many ports in the countries named above. He was survived by a widow and two daughters.

A CONCESSION of 28,000 square miles, reported to be rich in minerals, timber, and India-rubber, has been granted by the government of Venezuela to Dr. A. C. Rogers, of Faribault, Minn., representing a syndicate of capitalists, who have begun the work of development. Several of the persons interested lately arrived at New York from an inspection of the lands, but Dr. Rogers, who holds the position of president of the Orinoco Mining Co., writes to THE INDIA RUBBER WORLD that there is as yet nothing definite to report in regard to the rubber prospect.

DEPRESSION IN THE DRUGGIST'S-SUNDRIES TRADE.

A CONDITION common at this time to all branches of the India-rubber trade in America—with the exception of the tire industry, and, perhaps, of one other—applies with neither more nor less force to the business in druggist's sundries. At a time when the price of crude India-rubber is high as related to the average for some years past, the demand for manufactured goods is so weak that no opportunity seems to be afforded for marking up stocks at a corresponding advance. The present depression in the prices of sundries has been reached by degrees through a long period of years, and is the result in part of legitimate reductions due to improvements in manufacture, but to a greater extent to the keen competition of salesmen in slaughtering quotations. Added to this is such an absence of demand for goods that in many cases no inducement in the way of prices will effect sales. But if buyers are indifferent, there are some manufacturers who are none the less so with regard to making sales. If orders come in from regular customers, they must be filled, and at prices not higher than other concerns are quoting, whether or not any profit is to result, but naturally no energy is devoted to pushing sales under such circumstances. Last, but not least of the factors in the situation, is the presence in the market of goods offered at prices lower than the lowest cost of manufacture known in the trade only a few years ago, and lower than some manufacturers are able to come, even at this day. It is needless to say that some of the lowest-priced goods in the market are worth even less than what they sell for. Of course, no well-informed person wants this cheap stuff at any price, but there are always new users of rubber goods, who have everything to learn about such things, and others who, while they are aware of the existence of poor rubber goods, are unable to distinguish good from bad by their appearance. With these classes of buyers the lower-priced goods have the advantage, especially since there are some dealers who would encourage a customer to take a syringe for 67 cents instead of another for \$1.50, if there happened to be in sight a larger profit on the cheaper article. It would be a pleasanter task for a journal devoted to the interests of the India-rubber trade to record a different condition of the druggist's-sundries branch, but this is impossible at a time when every one engaged in it, from the manufacturers down, is agreed that extreme dullness prevails.

Yet the cloud is not without a bright lining. The manager of one of the largest concerns manufacturing rubber goods for the drug trade, seated in his office on a recent date, assured an INDIA RUBBER WORLD man that during the preceding week orders had reached the firm, from different parts of the country, at a rate comparable with that of the best seasons their house had ever known. His idea was that no one was buying goods during the period of depression except when absolutely compelled to do so. But now and then a druggist who has allowed his stock to decline to a point beyond which it would not be possible to go without putting a stop to business, makes up a good order and sends it in to his jobber, if not to the manufacturer. During the week referred to by the manager above mentioned, the coincidence happened that a number of druggists required goods at the same time, and the result was a rushing trade for a few days. But what rendered this case of particular interest was the fact that the requirements in the way of first-class goods were liberal, although there were much lower-priced goods offered by competing houses, and although the house in question is also turning out goods at figures less

than are charged for their standard grades. It would seem that if ever a cheap grade of goods would be demanded, now is the time, and the manager who was being interviewed expressed no small amount of satisfaction at the fact that in an exceptionally dull period orders were being received for the best goods they turned out. After the ensuing general elections, when the people will be able to decide in what way certain troublesome questions now agitating the public mind are to be settled, the buying of goods of all kinds will be resumed at a more active rate, according to the same manager, and druggists' sundries will come in for their share of attention.

But it will not be enough merely that the trade shall begin buying more liberally. There must be better prices, in some lines at least, to enable the manufacturers to continue their business long without loss. The usual occasion for advancing prices is when crude India-rubber goes up and continues high for a considerable period. As already intimated, the present high prices of India-rubber came at a time when the state of the market for manufactured goods rendered an advance in prices inexpedient, and even impossible. But other fluctuations are bound to come in time, and, some day, a sudden sharp rise in crude gum will give the sundries men the long-coveted opportunity to mark up all their products to a paying point. Meanwhile the prudent manufacturer—and the jobber as well—will devote most of his energy to pushing those articles which can really be sold at a profit, while contenting himself merely with filling such orders as may come in, unsolicited, for other classes of goods. There is, by the way, one favorable circumstance for the sundries men, which they do not fail to appreciate highly. Most of them have some patented specialties which form an important item in their production, and, as everybody knows, patented specialties, provided they have met any favor among buyers, are less affected in price by dull times or slashing competition. The whole situation, then, may be summed up by saying that manufacturers have kept their factories employed of late only so far as was necessary in order to keep their facilities unimpaired; that after the November elections the buying of goods is expected to increase, involving some orders insuring fair profits; and that by the time another advance in crude India-rubber occurs, the conditions of the sundries trade will have changed so that, by a firm step in marking up prices, all that has been lost during the present period of depression may be regained.

In addition to the considerations noted above, there is an opinion entertained by a prominent member of the sundries trade that is at least interesting. It is that the craze for cheapness runs in cycles, and always comes to an end. Earlier in his business career, he said, there was a run on cheap atomizers which lasted until goods of the first quality no longer found a sale, while the cheaper ones could not be made fast enough to supply the demand. Then suddenly, without any special cause being apparent, the cheap atomizers lost favor, and the manufacturers of a good article were able for some years to do a good trade. The gentleman expressing this opinion thought that such a change might occur at any time with regard to the present deluge in the market of cheap fountain syringes, hot-water bottles, and the like, of which particularly undesirable lots are being offered.

It is suggested that a cover of rubber or waterproof cloth would be appreciated by the owners of bicycles at the seashore.

IN RE BANIGAN V. WOONSOCKET RUBBER CO.

THE deposits of the Woonsocket Rubber Co. in three banks at Providence, R. I., were attached on August 8 by Joseph Banigan to secure payment of a note for \$100,000 made by Mr. Banigan when he was president of the company, in his own favor, for money advanced. The note fell due on August 3, and payment was refused by the order of the United States Rubber Co., on the ground that Mr. Banigan was under obligation to that concern for more than the amount of the suit. The writ is returnable on October 3.

Later, on the same day, an attachment in the sum of \$500,000 was levied on the real estate and bank deposits of Mr. Banigan in Providence, in a suit filed by Colonel Samuel P. Colt, who is now president of the Woonsocket Rubber Co., to secure the payment of Mr. Banigan's share of the sum still due on the uncollected book accounts of the Woonsocket Rubber Co. guaranteed to the United States Rubber Co. by the bond of the former company—an amount now aggregating \$375,000. [The details of this account are noted in THE INDIA RUBBER WORLD of July 10 last.]

On August 13 an arrangement was effected between Frederick Cook, treasurer of the Woonsocket Rubber Co., and James Tillinghast, attorney for Mr. Banigan, by which the deposits of the company in the Rhode Island Hospital Trust Co. were released from the attachment placed upon them in Mr. Banigan's suit, but the other attachments still stand. No amount was stated in the papers signed relating to this release, but it is understood that the action was in no sense a step toward the settlement of the matters in dispute. The attorney for Colonel Colt is Senator William G. Roelker.

* * *

In a telegram from Providence to the Boston *Herald*, dated August 7, at which time intimations of the above-mentioned suits had already become public, appear interviews with Mr. Banigan and Colonel Colt, respectively, which bear evidences of authenticity.

Mr. Banigan's statement is, in substance, as follows: In 1888, Shipton Green, of New York, who had sold India-rubber to the Woonsocket Rubber Co., presented a bill over which there was a dispute, and a suit followed, involving an attachment upon all the assets of the company. The attachment was raised and the suit withdrawn, after which there was a new levy, which sort of thing was repeated four times, the news of which was telegraphed over the country, with the effect of impairing the credit of the company. The treasurer of the Woonsocket company, Mr. Cook, was notified by a Boston bank holding the note for \$75,000 that it must be taken up, and, at the suggestion of Mr. Banigan, then president of the company, the note was taken up with money loaned by the latter, for which the company's obligation was taken. From that time on Mr. Banigan loaned money to the company until the amount reached \$785,000. When they went into the United States Rubber Co. that indebtedness was \$700,000, which has been reduced gradually to the present amount, \$100,000, for which Mr. Banigan holds the note in litigation. All the notes were for \$100,000 each, and the last was due on August 3, at which time Mr. Banigan was traveling home from Utah. On reaching home and learning that the note had not been paid, he made a demand for payment, which was refused, upon which he instructed his attorney to bring suit.

* * *

COLONEL COLT said that as a matter of course the Woon-

socket Rubber Co. had at various times been indebted to Mr. Banigan for money loaned—the highest amount reached being \$1,200,000—all of which had been paid but the note for \$100,000. When the Woonsocket Rubber Co. went into the United States Rubber Co., Mr. Banigan, as president of the former, delivered to the latter a bond that the quick assets of the Woonsocket company should be made good. The United States company paid \$2,100,000 for the Woonsocket company, and the assets failed by \$375,000 to come up to that mark. On account of delays in adjusting the business and in making collections this sum has never yet been paid, and Mr. Banigan, as one of the late stockholders in the Woonsocket company, admits that his share of the claim held by the United States company is not less than \$150,000. "Mr. Banigan has had every dollar due him excepting that note. More than that, he has had his salary as president of the Woonsocket Rubber Co., and, without the knowledge of the other members of the United States company, has been charging commissions on the business done. As president of the company he had absolute control and received those commissions, which of themselves more than offset his note. I think that Mr. Banigan does a wrong thing in going to law, and I have told him so." Colonel Colt says that he offered to place in the hands of Mr. Banigan's counsel a check for \$100,000, to be held by him subject to the settlement of the bond referred to, but Mr. Banigan wanted his \$100,000 in hand before considering the adjustment of the bond and the claim of the United States Rubber Co. against the Woonsocket company.

* * *

ANOTHER note for \$100,000 made by the Woonsocket Rubber Co. in favor of Mr. Banigan turned up at the Providence Institution for Savings on August 10, and was paid by Treasurer Cook. The funds of the company, as shown by the daily balance on the date named, amounted to \$379,000. The banks in which funds belonging to the company were attached were the Rhode Island Hospital Trust Co., the Industrial Trust Co., and the Merchants' National Bank.

Within two years past Mr. Banigan has invested about \$1,500,000 in the Banigan block, the Wheaton & Anthony block, the Billings block, and the Jones estate, in Providence. All are excellent pieces of real estate, centrally located, and all were included in the writ of attachment. There were also included deposits in the Rhode Island Trust Co., the Commercial National Bank, and the Merchants' National Bank. It is stated that on the date of the attachment Mr. Banigan's deposit was unusually low in the first of the institutions named, and that on the morning of that day the funds in the other banks, except about \$200 in each had been secured against attachment.

The commissions paid to Mr. Banigan to which reference is made above probably were those on crude India-rubber sold by him to the Woonsocket Rubber Co., and, at one time, to other branches of the United States company.

The latest report is to the effect that the attachments made on the property of Mr. Banigan by the United States Rubber Co., have been lifted, though the terms of the agreement have not been made public.

In an article on the rank of the various American cities as manufacturing centers, the New York *Sun* says: "In the manufacture of rubber goods Boston is far in advance of New York, and the second place is held by Cleveland."

AMERICAN AND FOREIGN RUBBER FACTS IN FIGURES.

THE table first presented below relates to the India-rubber movement for the first six months of 1896, compared with the corresponding period of other years, for the leading rubber-consuming countries of the world. The figures, which express pounds, are compiled from official returns of imports and exports, and in each case the difference between imports and exports is assumed to be the amount entering into consumption. One object in presenting the table is to show the increased requirements of late in rubber for Europe, while in respect to the United States there has been no such increase.

	1894.	1895.	1896.
UNITED STATES:			
Imports.....	19,561,635	24,667,245	20,375,354
Exports.....	1,201,688	1,020,715	1,546,326
Net Imports...	18,359,947	23,646,530	18,729,028
GREAT BRITAIN:			
Imports.....	19,006,064	19,468,400	25,689,552
Exports.....	8,965,040	10,165,792	12,636,624
Net Imports...	10,041,024	9,302,608	13,052,928
GERMANY:			
Imports.....	6,315,760	6,785,460	8,856,980
Exports.....	947,540	1,318,900	1,990,340
Net Imports...	5,638,220	5,466,560	6,866,640
FRANCE:			
Imports.....	5,776,540	4,430,580	5,955,400
Exports.....	2,911,260	2,687,960	2,697,860
Net Imports...	2,865,280	1,742,620	3,257,540

[NOTE.—In respect to Great Britain, the above table does not include the imports and exports of Gutta-percha. This gum is included, however, in the statistics of the other countries. The figures given for 1896 for France relate only to five months, January-May.]

* * *

IN the table which follows, compiled from treasury reports from Washington, it will be seen that the decrease in the total importation of crude India-rubber into the United States during the fiscal year ending June 30, 1896, as compared with the preceding year, was almost entirely in the Pará grades. Of the rubber imported from Europe but a small amount is Pará rubber. The figures refer to quantity in pounds:

FROM—	1894.	1895.	1896.
United Kingdom.....	3,641,993	5,985,761	7,539,267
Germany.....	1,189,078	1,306,146	1,024,911
Other Europe.....	1,979,501	1,968,739	2,639,514
Mexico.....	120,415	160,802	124,343
Central America.....	1,239,893	1,335,306	1,151,278
West Indies [Venezuelan].....	22,445	27,697	20,669
Brazil.....	23,386,132	26,489,207	22,094,873
Other South America.....	1,464,515	1,718,297	1,527,028
East Indies.....	421,563	627,690	621,542
Africa.....	291,848	112,527	15,938
Other Countries.....		9,435	15,097
Total.....	33,757,783	39,741,607	36,774,460
Gutta-percha.....	498,763	1,326,794	3,843,854
Grand Total.....	34,256,546	41,068,401	40,618,314

[NOTE.—In all instances the government statistics regarding Gutta-percha must be received with allowance, it being certain that no such amounts as above indicated are ever imported into the United States. The figures given doubtless include Balata, Tuno, Pontianak, etc.]

* * *

THE exports of American manufactures of India-rubber and Gutta-percha are showing a steady increase, though the increase does not extend to rubber boots and shoes. For the twelve

months ending June 30, 1896, the figures under this head were the largest on record, reaching a total in value of \$1,858,556, against \$1,505,142 for the year previous. Since January 1 last, compared with the corresponding period one year ago, the values of rubber-goods exports have been as follows:

	1895	1896.
Pairs of boots and shoes.....	138,061	70,565
Value of boots and shoes.....	\$ 81,095	\$ 52,630
Value of other rubber goods.....	655,363	872,159
Total value of rubber exports...	\$736,458	\$924,789

It may interest some readers of THE INDIA RUBBER WORLD to recall that, a good many years ago, the exports of American rubber shoes to Europe were much heavier than now, for the reason that the development of the industry first reached important proportions here. Here are some comparative figures, showing American exports of rubber footwear and other rubber goods in the earlier years of the industry:

YEAR.	Pairs of Shoes.	Value of Shoes.	Other Goods.	Total Value.
In 1854-55.....	1,014,158	\$686,769	\$722,338	\$1,409,007
In 1855-56.....	685,220	427,936	665,602	1,093,538
In 1856-57.....	573,238	331,125	312,387	643,512
In 1857-58.....	247,389	115,931	197,448	313,379
In 1858-59.....	102,537	52,006	146,821	198,827
In 1859-60.....	107,693	58,826	182,015	240,841
In 1860-61.....	60,729	33,603	160,088	193,691

The next figures offered will show the decline in the number of pairs of rubber boots and shoes exported to Great Britain and the German ports during the same term:

	1855.	1857.	1859.	1861.
Great Britain.....	471,588	86,046	7,953	3,260
German Ports.....	385,478	326,350	32,816	79,853

It is creditable to American enterprise to note that this falling-off in the export of rubber goods was not due to foreign competition. As is well known, the principal development of the rubber industry in Europe was based upon American initiative. In the *Scientific American* in 1858 there appeared an article by the late Jonathan T. Trotter, asserting that, with the exception of the Macintosh concern, every rubber manufactory in Europe was based on American capital, operated by American managers, and entitled to be considered an American enterprise.

* * *

THE officially-reported value of German exports of manufactures of India-rubber and Gutta-percha during the first six months of 1896, compared with the same period of 1895, is as follows:

In 1895.....	11,228,000 marks (= \$2,807,000.)
In 1896.....	13,784,000 marks (= \$3,446,000.)

A similar comparison of the export trade of the United Kingdom, in caoutchouc goods, for the first six months of five years past, shows:

In 1892.....	£588,180 (= \$2,940,900)
In 1893.....	583,037 (= 2,915,185)
In 1894.....	542,282 (= 2,711,410)
In 1895.....	561,997 (= 2,809,985)
In 1896.....	609,548 (= 3,047,740)

"I UNDERSTAND, then," concluded the interviewer, "that your success was achieved at a bound?"

The India-rubber Man nodded his head gravely.—*Rockland Tribune.*

THE NICARAGUAN RUBBER DECREE.

A DECREE of the government of Nicaragua, restricting the exportation of India-rubber to the produce of cultivated trees, has been translated for the United States department of state by Vice-Consul Henry E. Low, at Managua, as follows:

TO PREVENT the extinction of the India-rubber trees in the national forests, and to develop their cultivation in plantations, arranged with the bounty laws, the president of the republic decrees:

1. From January 1, 1897, it will be prohibited in all parts of the republic to export India-rubber which has not been cultivated in plantations, arranged in accordance to the laws of March 6, 1883, and March 23, 1887.

2. The foregoing prohibition will last for ten years from the date indicated, and whosoever shall act contrary shall be fined in accordance with the regulations concerning fraud upon the treasury, shall lose for the benefit of the treasury the India-rubber, and besides be fined to the amount of *four times its value*.

3. India-rubber can be exported only coming from regular plantations, formed, as before said, in conformity to the bounty laws of 1883 and 1887, but to verify it the exporters must register their rubber forms, first, in the office of the tax-collector of the district, expressing the number and age of trees. This registration will be gratuitous and must be made every year in the first days of January, to produce the desired effect. The exporters must receive from the tax-collector way bill (a certificate, and to go with the produce forwarded) made out to order; in order that this document may be endorsed they must present their registration certificate, and forward a copy of both documents to the minister of finance.

4. Anybody found extracting India-rubber from the national forests will be considered as a smuggler (contrabandist) and will be sentenced and fined as such by authority of the judicial or police department.

5. To be presented in the next sitting of the legislature. To be published.

INTERVIEWS with Mr. William A. De Long, who was for some years engaged in the India-rubber trade in Nicaragua, and with other rubber-men in New York, have elicited only expressions of the opinion that the enforcement of the above decree will be practically impossible. In some quarters it has been intimated that the government of Nicaragua can ill afford to lose the revenue derived hitherto from the export duty on India-rubber, amounting to 4 cents a pound, or about \$40,000 a year.

SOME ARTISTIC FASHION-PLATES.

TWO excellent specimens of artistic poster work have been distributed lately by the Hodgman Rubber Co. among their customers, the purpose being to advertise their fine mackintoshes. One represents in the foreground a lady on a fashionable promenade in New York city, dressed in a Hodgman mackintosh, while in the rear are to be seen both ladies and gentlemen attired in garments of the same class. The original of this very attractive picture was by the celebrated artist, E. Percy Moran. The second picture represents two gentlemen, stopping for a talk on the street, one in a stylish cart and the other standing at the curbstone, both attired in up-to-date mackintoshes, the "atmosphere" of the picture indicating that the weather is such as to make a demand for such garments. No doubt these pictures will be highly appreciated by all the members of the trade fortunate enough to receive them, as they would ornament the interior of any rubber store or office.

THE LATEST RUBBER RETURNS FROM LAGOS.

ADVICES lately received from Lagos, West Africa, by THE INDIA RUBBER WORLD do not indicate such a falling-off in the output of India-rubber from that colony as might have been expected from reports current in the trade. Compared with the same period in 1895, the exports of crude rubber for the first six months of the present year have been as follows, the figures referring to pounds:

MONTHS.	1895.	1896.
January.	12,131	1,103,666
February.	15,188	575,891
March.	26,316	352,349
April.	39,763	222,043
May.	216,916	335,062
June.	268,619	354,065
Total.	588,933	2,943,076

In fact there has been no falling-off, except in comparison of the months since January with the last six months of 1895, during which time about 4,500,000 pounds were exported. There is no means of predicting what the output may be between the present date and January 1, next, until which time we shall be obliged to wait before knowing which of the two years is to be the heavier producer of Lagos rubber.

THE INDIA RUBBER WORLD has been favored, from official sources, with a statement of all the rubber exports from Lagos since the beginning, which are given space here partly for the reason that it has nowhere else appeared:

YEAR.	Pounds.	Value.
In 1886.	112	£ 10 0 0
In 1887.	92	4 12 0
In 1888.	567 1/4	41 2 0
In 1889.	502	27 7 0
In 1890.	119	8 3 0
In 1891.	104	3 18 0
In 1892.	none	.....
In 1893.	56	2 10 0
In 1894.	5,867	324 6 4
In 1895.	5,069,576 1/2	269,892 13 10
Total.	5,076,995 1/4	£ 270,314 12 2

The declared value of the rubber exports from Lagos for the first six months of 1896 amounted to £149,562 16 11, or an average of 12 1/2 d. per pound. This is very slightly below the average price ruling last year.

THE PERUVIAN WAR NOT OVER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Since you have published of late several articles in reference to the revolution in eastern Peru, involving a considerable rubber-producing territory, it may interest your readers to know that, in the best-informed circles of Pará, the belief is not entertained that the revolution is at an end. On the contrary, the present quiet is regarded as due to a *ruse de guerre* on the part of the insurgents, to gain time.

Pará, Brazil, August 17, 1896.

[DESPATCHES lately received in New York confirm the above views by noting that the Colombian government has granted permission to the government of Peru to transport an armed expedition across the Isthmus. This expedition was intended to start from one of the Pacific ports of Peru and, crossing the Isthmus, proceed to the Atlantic and reach Iquitos after ascending the Amazon river.—THE EDITOR.]

A FAILURE IN CHICAGO.

CHARLES H. FARGO & CO., a leading shoe firm of Chicago, on August 6, confessed judgment in the United States court on notes aggregating \$170,000, in favor of the United States Rubber Co. and The L. Candee & Co., and their doors were closed by a marshal of the court. Close upon this came a confession in the circuit court of Cook county for \$25,000, in favor of the Metropolitan National Bank. Later, in the circuit court, Frank E. Makeel was appointed receiver for the firm on the petition of a creditor in the leather trade. The court was asked to decree the judgment above mentioned null and void, and to order the stockholders to pay \$217,000, being the amount declared by the complainant to be due on their stock subscription. The notes to the rubber companies were given last winter, at which time the firm were passing through a strain. They were then given some financial assistance, in addition to extended credit by those companies, and the notes were executed in return. Treasurer Charles R. Flint says that the United States Rubber Co. are well secured. A statement given out shows liabilities amounting to \$325,250, and assets of \$440,000, but the firm had much difficulty in securing ready money. The house dates from 1856 and had until the time of the failure a commercial rating of \$500,000. They manufactured extensively a "ball-bearing" shoe for bicyclists, having a factory at Dixon, Ill. At last accounts they were attempting to make such an arrangement with creditors as would permit the continuance of the business.

A DULL SUMMER IN RUBBER SHOES.

THE rubber-shoe factories not only took a longer summer vacation this year than usual, but they were not all prepared to resume operations at the dates indicated when the several mills were shut down. Thus the "Alice" and Millville mills of the Woonsocket Rubber Co. were to have resumed work on August 18 and August 25, respectively, according to notices posted by the management, but as the time approached Superintendent Comee was forced to explain that orders from a higher source made delay necessary. According to the local newspapers, Mr. Comee was told by the management of the company that the extended period of idleness was necessary "because of the general business depression and the unsettled financial condition of the country owing to the silver agitation." On August 24 a press despatch from Woonsocket reported: "Mayor Greene this morning received a letter from President S. P. Colt saying that the factories of the Woonsocket Rubber Co. would be started not later than September 15, because of the condition among the workmen here as represented by the mayor, although business does not warrant the resumption." This report had been preceded by statements that there was a prospect of an additional appropriation for the poor in Woonsocket, on account of the large number of the unemployed in that town, in the India-rubber and other industries. There was a rumor current in Woonsocket, about the middle of August, that an attempt had been made by unknown parties to blow up the "Alice" mill, but the local management denied any knowledge of such attempt.

In a newspaper interview, widely published during August, Treasurer William T. Rodenbach, of the Goodyear's Metallic Rubber Shoe Co. (Naugatuck, Conn.), was quoted as ascribing the industrial stagnation to the free-silver agitation. He said: "We closed the shop on July 24, with the intention of keeping closed for about three weeks, to put in new boilers and make

needed repairs. But it is now probable that the shop will be closed for an indefinite period of time on account of the unsettled condition of the money market. We shall certainly wait until the atmosphere clears a little. We have orders enough now to go ahead at once, but a very large portion of them are from the south and west, and we do not feel that we could safely go ahead and fill them, when the financial conditions are so uncertain." The factories of this company were in operation, however, by the end of August.

Toward the end of August the factories of the American Rubber Co. (Cambridgeport, Mass.) resumed work, the clothing department running full and the shoe department three-quarters full. The clothing department, ran full time all summer.

The notices posted at the factory of The L. Candee & Co. (New Haven, Conn.), of a shutdown beginning on August 1, named three weeks as the length of the duration, but a further notice posted about the middle of August announced a continuation of the shutdown. This was stated to be "owing to the unsettled and unsatisfactory business condition now prevailing, especially in the west."

During the last week in August a notice was posted at the factory of the Goodyear India Rubber Glove Manufacturing Co. (Naugatuck, Conn.), that the long shutdown there would end on September 5. On August 28, in obedience to orders received from the president of the United States Rubber Co., the notice was taken down.

A NEW ELASTIC-FABRICS FACTORY.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The people of Milford, Mass., are congratulating themselves upon the addition to their already extensive list of industries of a plant for the manufacture of narrow elastic fabrics. The new factory, which is just about starting, is owned by William Lapworth & Sons, who have secured the building erected for carshops by the late Hopedale Electric Co., to which has been added a boiler-house. These buildings are located on the line of the New England railroad, with a spur-track running to the very doors. The principal structure is 100x125 feet in size, partly of two stories, in the form of a hollow square, and admirably adapted to this business. Since the middle of July the looms have been set up at the rate of two per week, so that there are now a dozen or more in place, and the intention is to increase the number to forty-one. The power equipment embraces a new 20-horse-power James Leffell engine, with a 50-horse-power boiler. The machinery is all new, and embraces the latest improvements. The goods to be made will be of widths from $\frac{3}{8}$ inch to $1\frac{1}{4}$ inches.

William Lapworth, the head of the company, came to this country from England several years ago to fill the position of superintendent of the mill of the Hopedale Elastic Fabric Co. (Hopedale, Mass.), owned by the Drapers, the head of the company being Congressman William F. Draper, of Massachusetts. Lately all the machinery in the Hopedale plant was sold and removed, for the reason that the premises were needed for the steadily-increasing cotton-machinery business in which the Messrs. Draper are engaged. Mr. Lapworth at the same time severed his connection with these gentlemen to engage in business on his own account, and he was induced to settle in Milford by the liberality displayed by the business men of the town in subscribing to the expense of adapting the buildings to the new use required of them. Associated with Mr. Lapworth are his three sons—Charles A., Frank A., and Arthur F. Lapworth. They expect to do a business sufficient to give employment to from 100 to 125 hands.

C. A. S.

Milford, Mass., September 1, 1896.

MESSRS. HOOD'S NEW RUBBER FACTORY.

THE latest report concerning the new rubber-shoe enterprise credited to the Messrs. Hood, who were lately at the head of the Boston Rubber Co., is to the effect that the new building in process of erection for them at East Watertown, Mass., is still under way, and will be completed before many weeks. The company's site includes about ten acres, and extends from the newly built sidetrack near the Union Market Station, in Watertown, to East Watertown. The factory is four stories high, and there will be 68,000 square feet of floor space. There are many novel features in its construction. The new enterprise is expected to increase the town's valuation many thousands of dollars, as a large number of houses are to be erected in the immediate vicinity for the accommodation of the working people who will be employed there. The second building is about forty-eight feet square, and is attached to the main building. It is hoped that the new company will be ready to begin operations by November 1, with about 500 hands at work. Over a hundred men have been at work on the building and grounds at one time. It is reported that the plant is to cost about \$200,000. The Franklin (Mass.) newspapers report that the rubber company have definitely secured the services of Superintendent Herbert Mason, and Charles I. Dean, the pattern-maker, J. W. Bradley and Henry Weller, foremen, lately in the employ of the Boston Rubber Co.

A NEW BANIGAN FACTORY IN PROSPECT.

THE report now current in the trade is that the Saxon mill property at Olneyville, a suburb of Providence, R. I., actually will be equipped soon for the manufacture of India-rubber boots and shoes, on a large scale, under the management of John J. Banigan and William B. Banigan, sons of the ex-president of the United States Rubber Co. It is intimated that the name of Joseph Banigan is not to be used in connection with the new establishment, on account of his being under obligation not to engage in the rubber-shoe trade in competition with the old company,—on the other hand, it is claimed that, upon declining the position of director of the United States company, to which he was elected in May last, Mr. Banigan's connection with and agreements with that corporation entirely ceased. Among the details which are being discussed are the

character of the equipment of the new rubber factory—rubber machinery from Birmingham, Conn., and a 1000-horse-power Greene-Corliss engine of Providence make. Also that Maurice J. Clark is to be superintendent and T. B. Buddington, formerly foreman at the City Iron Foundry (Woonsocket), master mechanic. The mill referred to has been operated hitherto as part of the plant of a great wool-manufacturing syndicate of which Charles Fletcher is, or was, the president.

THE NATIONAL CARRIAGE CONVENTION.

CERTAIN rubber-manufacturers will be interested in the announcement that the Carriage Builders' National Association will hold their twenty-fourth annual meeting at St. Louis on October 13-15 next. In connection with the meeting will be the usual exhibition of parts of vehicles, models, new inventions, and materials pertaining to carriages and accessory industries, to be open throughout the week. It is expected that, as usual, the various applications of India-rubber to carriage-building, including tires, will be shown extensively. The convention and the exhibition will occupy the great Auditorium, in which the recent political conventions were held, and which is admirably suited for the purpose. Goods may be sent, express prepaid, in the owner's name, care Auditorium, St. Louis, Mo., marked "for carriage exhibit," and should not arrive in St. Louis before Friday, October 9. The secretary of the association is Henry C. McLearn, Wilmington, Del.

TO MANUFACTURERS OF RUBBER MACHINERY.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I wish to obtain pictures and descriptions of rubber manufacturing machinery, particularly that adapted to the insulation of wire, for use in my University lectures. I would be pleased to have you call this to the attention of some of your manufacturers who would be willing to furnish me with the information that I desire.

F. A. C. PERRINE.

Palo Alto, Cal., August 25, 1896.

[MR. PERRINE holds the professorship of electrical engineering at the Leland Sanford, Jr., University in California. He is at the head of his profession and manufacturers of the machinery spoken of certainly cannot do better than to give him the fullest information.—THE EDITOR.]

TRADE AND PERSONAL NOTES.

THE Hon. L. D. Apsley, president of the Apsley Rubber Co. and representative in congress for the fourth Massachusetts district for the last two terms, has notified the political leaders of his district that he will not, under any circumstances, accept a renomination to the office. He gives as a reason the necessity for giving more attention to his private business. He is not only president and treasurer of the Apsley Rubber Co., employing nearly 1000 hands, but also president of the Millay Last Co. and the Hudson Board of Trade, and a director in other concerns of importance. Mr. Apsley will, however, remain in an important position as a campaign manager until after the pending presidential election.

—Mr. Theodore E. Studley, who lately retired from a connection with the India-rubber trade in New York city extending through more than forty years, has opened an office at No. 42 East Fourteenth street (Union Square south), as the representative for the United States and Canada of the Parfumerie Lubin, of Paris.

—Bids were opened in Washington on August 11 for supplies for the Brooklyn navy-yard, including the following items of India-rubber goods: Five hundred and forty-six rubber life-belts, contract awarded to the Manhattan Supply Co. (New York), at \$1896.60; 1850 feet upper-deck fire-hose, to the New Jersey Car Spring and Rubber Co., at \$1144.69; 700 feet 1½-inch wash deck hose, to the Boston Woven Hose and Rubber Co., \$126.

—Mr. G. W. Flynt, representing the Willow Chemical Co., of Cleveland, Ohio, is calling upon the rubber trade throughout the east offering a high grade of chlorid of sulphur for use in special work.

—Mr. Ernest H. Brandt, manager of the New York branch of the Hartford Rubber Works Co., and Miss Francesca Marie Sternberg, of West Hartford, Conn., were married on August 15. Among the wedding presents was a silver table service from the Hartford company. Mr. and Mrs. Brandt will reside in Mt. Vernon, N. Y.

=H. S. F. Sears, of Clinton, Mass., has become interested with W. W. Wilder, of Hudson, Mass., in the business conducted by him as the Hudson Rubber Co., in the manufacture of rubber garments. The works were idle during the heated term, and the engine was overhauled, but they are now working full time. The company have employed Miss Mary O'Brien to travel to sell their goods.

=Mr. Richard F. Sears, of R. F. Sears & Co. (New York and Pará), arrived at Pará on August 17, after a safe trip, and will probably remain away from New York for several months.

=In the suit brought by the North British Rubber Co., Limited (Edinburgh), against the Gormully and Jeffrey Manufacturing Co., of Chicago, for infringement of the "Clincher" tire patents, at the factory of the defendant corporation at Coventry, England, judgment has been given for the plaintiffs, with the usual direction for account of profits. The defendants must also pay the costs of the action.

=Among the many beautiful craft which went down to the lower bay on Friday, August 28, to view the welcome to New York of Li Hung Chang, was the propeller *Wachusett*, owned by T. & S. C. White, original manufacturers of "pure soft sulphur," prepared especially for use by India-rubber manufacturers.

=The crude rubber firm of Sears & Co. have removed their New York offices from No. 1 Broadway to the Morris building, No. 66 Broad street, where they will occupy a more central location with respect to the trade.

=After a litigation extending over four years, August Seher, a chemist, of Newark, N. J., has won his suit against John H. Stevens, of the same city, involving the priority of the discovery of a certain solvent for use in the manufacture of celluloid. Mr. Stevens is in the employment of the Celluloid Co.

=Walter Garland, late of the firm of Stevenson, Alexander & Co., of Baltimore, Md., has been elected treasurer and general manager of the Patapsco Rubber Co., of that city.

=The will of Mrs. Emilie Funke, who died on May 11 last at College Point, L. I., disposes of \$192,000 in real and \$49,009.17 in personal property. She was the widow of Herman Funke, who was associated with Conrad Poppenhausen in the India-rubber industry at College Point and in railway development on Staten Island.

=Mr. L. G. English, of Chicago, has accepted a position with the New Jersey Car Spring and Rubber Co. (Jersey City, N. J.) Mr. English is an energetic, popular man, full of snap, and has a very large western acquaintance to whom he will shortly introduce the Car Spring Co.'s goods.

=The seventeenth annual "meet" of the League of American Wheelmen, held last month at Louisville, Ky., was in every respect a successful affair. Naturally the manufacturers of bicycle-tires were on hand in full force, including agents of the New York Tire Co., the Boston Woven Hose and Rubber Co., the Palmer Pneumatic Tire Co., the Newton Rubber Works Co., the B. F. Goodrich Co., the Akron India Rubber Works, and the three great bicycle concerns who make tires of their own—the Pope, Overman, and "G. and J." companies. The big "Vim" tricycle of the Boston Woven Hose and Rubber Co. was particularly in evidence.

=The Graff Manufacturing Co. have been incorporated under the laws of New York state to manufacture leather tires, saddles, and grips for bicycles. The president and general manager is Andrew Graff, who has long been in the leather business. The other officers are: M. J. Fenton, vice-president and general agent; George H. Carpenter, treasurer; and George H. Kretz, secretary. A tandem bicycle fitted with their tires has been subjected to severe tests.

=The Boston Woven Hose and Rubber Co. have removed their New York headquarters from No. 63 Reade street to a much more extensive store, fronting on No. 89 Chambers street and extending back to No. 71 Reade street, where an entrance exists for the receipt and shipment of goods. At the location first mentioned an office was opened early in the present year for the sale of the "Vim" tires. The business of the agency has been increased until it has taken on the proportions of a branch-house, and now includes, in addition to tires, a general line of the company's products, including rubber packing, belting, hose, etc.

=The works of the Goodyear Vulcanite Co. (Morrisville, N. J.) are reported to be running steadily, with good prospects ahead.

=The Eastern Rubber Manufacturing Co. (Trenton, N. J.) have been licensed to do business in Pennsylvania, with an office in Philadelphia.

=Mr. Wm. T. Baird, Treasurer of the Mechanical Rubber Co. (New York) has taken his annual outing, moose and caribou shooting at Caribou Plains in Canada. For several years past he has spent the month of September there and has had most excellent luck in securing fine specimens of this large game.

=The Joseph Dixon Crucible Co., whose graphite specialties are well known to the rubber trade, are out with a preparation of finely pulverized graphite and pure petrolatum, which they have named "Graphitoleo," and it is said to be a perfect lubricant and rust preventive and is becoming more and more popular.

=Mr. Arthur Meyer, of the firm of Reimers & Meyer, after a brief rest at the mountains, and another on the beautiful Jersey coast, has fully recovered from his recent dangerous illness.

=Mr. Samuel Cadwallader has been appointed manager of the Globe Rubber Works, Trenton, N. J. Mr. Cadwallader is a young man who has a great many friends in the rubber trade, and whose experience has been a long and valuable one. After some years spent in various Trenton mills he accepted a position with the Globe about eight years ago, and from that time was an able assistant to the late J. D. Joslin. It is the verdict of the trade that Mr. Samuel K. Wilson has shown great wisdom in securing Mr. Cadwallader for this important position.

=Mr. I. R. Bailey, brother of C. J. Bailey, Boston, and for nine years his leading salesman, has accepted a position with the Columbia Rubber Co. (Boston), and will travel in the States of Ohio, Pennsylvania, and New York.

=Mr. J. J. McGill, general manager of the Canadian Rubber Co. (Montreal), was a recent visitor to Boston where he spent several days with prominent rubber men.

=Mr. Wm. J. Kelly, manager of the Newton Rubber Works (Newton, Upper Falls, Mass.), is making active preparations for a big business in tires this fall. He is doing much of the selling himself, and is a frequent visitor to New York.

=Mr. Geo. H. Forsyth, assistant general manager of the Boston Belting Co., has been spending his vacation in the Adirondacks.

=Mr. F. X. Pund and wife, of the well known rubber supply house, Puchta & Pund, Cincinnati, were recent visitors to Boston, and were entertained by Mr. Geo. Whitmore of the Boston Belting Co.

=All the effects of the Chelsea Wire Fabric Rubber Co. (Chelsea, Mass.), real and personal, have been sold of late under the sheriff's hammer, most of the property being bid in by parties in interest. The factory of the company had been closed since the disappearance of Treasurer Alfred W. Fitz, a year ago.

=Mr. Frank Jenkins, formerly with O. H. Howe & Co., Lynn, Mass., has accepted a position with C. J. Bailey, Boston, as head salesman of his retail department.

=Mr. Harrison C. Frost, representing Whitehead Brothers Rubber Co. (Trenton), the Goodyear Vulcanite Co., New York, and others, has removed his office from Devonshire street to 116 Bedford street, Boston, where he has a full line of samples, which he invites his many friends to examine.

=An attachment writ from the superior court of Cook county, Ill., for \$7352 was levied on August 19, by a deputy sheriff, upon property belonging to the Liberty Rubber Shoe Co. (New York), and located in a store at Monroe and Market streets, Chicago. The claim upon which the levy was made was for money advanced to the defendant company by Selz, Schwab & Co. (Chicago.)

=The Housatonic Rubber Co., a rubber-reclaiming concern at Bridgeport, Conn., were damaged by fire to the extent of \$5000 on August 28. They occupied an old wooden building belonging to the P. T. Barnum estate.

=While rumor has been busy all the month with Mr. Banigan's plans for converting the Saxon mill property, near Providence, R. I., into an India-rubber factory, THE INDIA RUBBER WORLD is informed, by the recorder of deeds of that city, that no evidence has yet been filed in his office that Mr. Banigan has acquired title to the mill property.

=The second annual dinner of the salesmen and branch managers of the Boston Woven Hose and Rubber Co. was held at the Hotel Nantasket on August 28. Mr. C. H. Gill, as spokesman for the others present, presented a very beautiful gold watch to Mr. W. A. Darling, head salesman.

=No sale was effected of the rubber-factory machinery of S. R. Brown, Wappingers Falls, N. Y., as advertised at auction for August 25. Part of the machine-shop tools and part of the horn-comb machinery was sold, at very low prices.

=Mr. Joseph Banigan sailed from New York on August 26 for a trip to Europe, which some people insist has a connection with the development of India-rubber interests which he has in view.

=“The American Rubber Tire Co.” will be the corporate title, after September 15, of the Columbia Pneumatic Wagon Wheel Co. (Oneida, N. Y.), an order for the change of name having been granted by the supreme court of the state of New York. The company have an office at No. 131 West Thirty-eighth street, New York city, and, as already noted in THE INDIA RUBBER WORLD, they are making a specialty of the introduction of pneumatic vehicle-tires manufactured by the Hartford Rubber Works Co. The concern has \$100,000 capital, and the following list of officers: Charles W. Stapleton, president; J. M. Goldstein, vice-president; Allen S. Whitman, secretary-treasurer; J. F. Aldrich, general-manager.

REVIEW OF THE INDIA RUBBER MARKET.

AT the outset of our review of the crude India-rubber market this month it is of interest to note that the arrivals of the new crop at Pará since July 1 have been considerable larger than during the corresponding period of last year, when all previous records were broken. It may be remarked in passing that the same conditions which resulted in last year's unprecedented production of Pará rubber are still operative; in other words, the spirit of enterprise which has led to the exploration of new rivers in the rubber country, to the increase of transportation facilities, and to the establishment of new houses in the rubber trade, has increased rather than declined, while the industrial demands for India-rubber have continued to multiply. There is no reason, therefore, for not confidently looking forward to a production in the present crop year exceeding that of last year by the customary percentage of increase, if not larger.

The world's supply of Pará rubber, while not so great as at some times in past, is greater than at this date in 1895, though this is due to comparatively small deliveries to manufacturers. Should there be a return to a normal activity of manufacturers in America as well as abroad, the effect of the resulting demand undoubtedly would be a stiffening of prices. At present, however, the demand remains weak, in consequence of which quotations declined somewhat during August.

In the United States, the rubber-shoe industry has been exceptionally inactive, and most other branches of the trade have felt the influence of the general stagnation of business. Several failures have been reported in the bicycle trade during the past month, resulting in some losses to the manufacturers of tires. There have been also some failures which have been felt by the rubber-shoe trade, but it is believed that the mechanical trade has experienced no such ill luck; but, on the contrary, has succeeded well in making collections, save in a few sections of the country. Undoubtedly a feeling of hesitation as to future undertakings prevails in view of the approaching political elections, but from present indications the rubber

trade as a whole seems prepared to withstand a few months more of dullness without disaster, and to be in a position to become liberal consumers of the raw material should the political disturbances pass with the recording of the popular vote in November.

The statistical position of Pará rubber in New York and elsewhere is as follows—figures expressing tons of 1000 kilograms:

	Fine and Medium.	Coarse.	Totals.	Totals. 1895.	Totals. 1894.
Stock, July 31.....	160	87 =	247	311	1088
Arrivals, August.....	119	83 =	202	280	432
Aggregating.....	279	170 =	449	591	1520
Deliveries, August.....	91	82 =	173	357	528
Stock, August 31.....	188	88 =	276	234	992
			1896.	1895.	1894.
Stock in England, August 31.....			995	990	960
Deliveries in England, August.....			550	575	622
Pará receipts, August.....			1130	980	1190
Stocks in Pará, August 31.....			170	110	475
World's supply August 31 (excluding Caucho)			2205	2108	2959
Pará receipts since July 1.....			2040	1940	1870

PRICES FOR AUGUST (ISLAND RUBBER).

	1896.		1895.		1894.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First.....	81	43	71	46	65	42
Highest....	81	44	73	48	67	45
Lowest.....	77	41½	70	45½	65	41
Last.....	78	43	73	47½	67	45

In regard to the financial situation, Albert B. Beers, broker in crude India-rubber and commercial paper (No. 58 William street, New York), advises us as follows: “During the month of August there was practically no sale for commercial paper, though possibly some small transactions may have taken place at 6 @ 7 per cent. for best names, but there was no regular demand, and at this writing it does not look as though the banks would come into the market to any extent for some weeks yet.”

The latest quotations in the New York market are:

PARÁ.		Benguela.....	48 @49
Islands, fine, new....	79 @80	Congo Ball.....	39 @41
Islands, fine, old....	none here	Cameroon Ball....	38 @39
Islands, coarse, new..	43 @44	Flake and Lumps....	25 @26
Islands, coarse, old..	none here	Accra Flake.....	18 @20
Upriver, fine, new....	82 @83	Accra Buttons.....	47 @48
Upriver, fine, old....	87 @88	Accra Strips.....	51 @53
Upriver, coarse, new..	54 @56	Lagos Buttons.....	42 @43
Upriver, coarse, old..	none here	Lagos Strips.....	43 @44
Caucho (Peruvian) sheet	40 @	Liberian Flake.....	30 @
Caucho (Peruvian) strip	44 @45	Madagascar, pinky..	58 @60
Caucho (Peruvian) ball	50 @51	Madagascar, black..	42 @43
CENTRALS.		Mozambique, red ball..	@....
Esmeralda, sausage..	48 @49	Mozambique, white ball	@....
Guayaquil, strip.....	33 @39	EAST INDIAN.	
Nicaragua, scrap....	46 @46½	Assam.....	42 @56
Nicaragua, sheet.....	none here	Borneo.....	26 @41
Mangabeira, sheet....	40 @43	GUTTA-PERCHA.	
AFRICAN.		Fine grade.....	1.30
Thimbles.....	34 @35	Medium.....	1.00
Tongues.....	38 @39	Hard white.....	85
Sierra Leone.....	25 @52	Lower sorts.....	....
Late Pará cables quote:		Balata.....	....
Islands, fine.....	6 @950	Per Kilo.	Per Kilo.
Islands, coarse.....	3 @8350	Upriver, fine.....	7 @550
Exchange 8 3/4d		Upriver, coarse.....	4 @850

THE RUBBER SITUATION IN PARÁ.

THE market, which had remained quiet and drooping from about the first of August, began about the 10th to manifest more animation, in consequence of which arrivals readily found buyers at improved values, the lower rate of exchange contributing to raise currency prices. With a steady demand the market thenceforth remained firm up to the date of our latest advices. All arrivals of Islands rubber were being promptly purchased, while the greater part of the Upriver coming in was held for an advance. Mail advices from R. F. Sears & Co. report the following prices at Pará, under the several dates mentioned, in the American currency equivalent for the local quotations per pound:

	July 18.	July 28.	Aug. 8.	Aug. 18.
Islands, fine.....	73 3/4c.	72 3/4c.	70 3/4c.	70 1/4c.
Islands, coarse.....	39c.	36c.	34c.	35 1/4c.
Upriver, fine.....	79 1/2c.	78 1/2c.	77 1/4c.	76 3/4c.
Upriver, coarse.....	52 1/2c.	48 3/4c.	47 1/2c.	48c.

These prices are *f. o. b.*, not including shrinkage, freight, and insurance. The latest advices as to the course of exchange was to the effect that "The rate has continued in its downward course, having now reached 8 3/4 d, for 90 days on London. This sudden decline is said to be chiefly due to a large failure in Rio de Janeiro, and that the effect of such an occurrence could be so serious at a time when crops are coming forward rapidly and abundantly seems to be quite a characteristic sign of the financial position of the country."

THE ANTWERP RUBBER MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Since the Congo Free State has begun to export India-rubber, Antwerp has become an important market for this commodity all the rubber from the State being shipped to this port. The importation of Congo rubber, which began in 1889 with only 47 tons, had steadily increased by 1894 to 275 tons, and in 1895 reached 531 tons (=1,168,200 pounds). The Congo railway, which has now attained a length of 187 kilometers (=116 miles), or about one-half the total proposed length, will no doubt contribute to an important further development of this trade. The State superintends the collection and coagulation of the rubber, and the quality has been improved thereby latterly.

During the present month 118 tons of Congo rubber have been imported, against only 38 tons during August of last year. Sales reached 74 tons, at somewhat lower prices than prevailed one year ago. The principal lots were 10,700 kilograms red Congo thimbles, at 3.45 francs per kilogram, and 10,800 kilograms Upper Congo-Uelle at 5.17 1/2 francs. Twenty-three tons Upper Congo Equateur balls of good quality were withdrawn, bids being too low to meet the demands of holders. Thirty-six tons Upper Congo Lopori balls, just arrived by the steamer *Edward Bohlen*, were sold at 6.15 francs—a decline of 10 centimes on the last sales in July. Besides, a quantity of 25 tons red Congo thimbles is now on the market at 3.55 francs, 12 tons of which have just arrived, the remaining quantity to be taken within three months, with a maximum of 25 per cent. of secondary and sticky quality.

The sales of August 13 and 14 were insignificant, 8800 kilograms being offered, of which only 3800 were sold, at irregular prices. The sale listed for September 1 will comprise only 5700 kilograms.

C. SCHMIDT & CO.

Antwerp, August 23, 1896.

IMPORTS FROM PARÁ.

THE receipts of India-rubber direct from Pará and Manáos at the port of New York since our last publication are reported in detail below, the figures referring to pounds:

July 13.—By the steamer *Cearense*, from Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Reimers & Meyer.....	10,700	7,100	19,200	.....	37,000
New York Commercial Co.	14,300	2,400	10,200	6,200=	33,100
Lawrence Johnson & Co.	.....	.....	6,000	.....	6,000
Totals.....	25,000	9,500	35,400	6,200=	76,100

July 21.—By the steamer *Cametense*, from Manáos and Pará:

Reimers & Meyer.....	18,900	14,600	51,400	.....	84,900
New York Commercial Co.	26,300	4,300	16,900	7,700=	55,200
Lawrence Johnson & Co.	15,600	17,800	8,900	2,400=	44,700
C. Ahrenfeldt & Son.....	.....	.....	.....	34,400=	34,400
Shipton Green.....	9,600	1,100	3,900	2,000=	16,600
G. Amsinck & Co.....	800	.....	4,400	.....	5,200
Totals.....	71,200	37,800	84,700	46,500=	240,200

August 3.—by the steamer *Horatio*, from Pará:

Reimers & Meyer.....	36,100	1,800	28,700	.....	66,600
New York Commercial Co.	28,900	5,000	16,100	300=	50,300
Lawrence Johnson & Co.	17,500	5,000	13,200	3,000=	38,700
G. Amsinck & Co.....	4,600	.....	.....	.....	4,600
P. Lima.....	1,600	.....	1,000	.....	2,600
Totals.....	88,700	11,800	59,000	3,300=	162,800

August 12.—By the steamer *Fluminense*, from Manáos and Pará:

New York Commercial Co.	60,700	13,200	13,400	3,900=	91,200
Reimers & Meyer.....	16,100	3,900	29,400	.....	49,400
Lawrence Johnson & Co.	1,800	2,100	12,600	4,500=	21,000
C. Ahrenfeldt & Son.....	.....	.....	.....	19,000=	19,000
Shipton Green.....	5,800	1,200	2,000	.....	9,000
G. Amsinck & Co.....	.....	.....	.....	1,600=	2,600
Totals.....	84,400	20,400	57,400	30,000=	192,200

August 22.—By the steamer *Lisbonense*, from Pará:

Reimers & Meyer.....	12,900	1,800	29,400	71,400=	115,500
New York Commercial Co.	23,200	6,400	20,100	5,500=	55,200
Lawrence Johnson & Co.	.....	4,600	18,000	.....	22,600
P. Lima.....	2,200	.....	2,500	.....	4,700
Totals.....	38,300	12,800	70,000	76,900=	198,000

August 31.—By the steamer *Hildebrand*, from Manáos and Pará:

Reimers & Meyer.....	83,000	16,800	17,600	.....	117,400
New York Commercial Co.	53,600	10,800	23,700	400=	93,500
L. Johnson & Co.....	29,800	7,100	18,200	.....	55,100
A. T. Morse.....	18,100	2,500	3,400	.....	24,000
Shipton Green.....	18,600	2,100	2,400	.....	23,100
P. Lima.....	2,400	.....	2,000	.....	4,400
Totals.....	210,500	39,300	67,300	400=	317,500

	1896.	1895.
January Imports—Pará.....	2,718,300	2,869,500
February Imports.....	1,945,900	2,274,400
March Imports.....	2,786,300	3,611,700
April Imports.....	1,941,500	2,156,400
May Imports.....	1,527,800	1,651,400
June Imports.....	583,900	1,030,100
July Imports.....	727,000	666,200
August Imports.....	872,500	766,500

PARA EXPORTS VIA EUROPE.

August 10.—By the steamer <i>Nomadic</i> , from Liverpool:	
Otto G. Mayer & Co. (Fine).....	11,000
Otto G. Mayer & Co. (Medium).....	1,700

OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York during August, 1896, of India-rubber from Mexico, Central America, and South America, other than Pará grades; also, arrivals at New York of African and East Indian sorts:

CENTRALS.

	POUNDS.
AUG. 3.—By the <i>Alleghany</i> =Cartagena:	
Kunhardt & Co.....	1,000
D. A. De Lima.....	1,200
Schultz & Ruckhaber.....	700
Hoadley & Co.....	700
Total.....	3,600

AUG. 4.—By the <i>Knickerbocker</i> =New Orleans:	
A. T. Morse.....	8,500

AUG. 7.—By the <i>El Monte</i> =New Orleans:	
W. H. Crossman & Bro.....	1,500

AUG. 11.—By the <i>Athos</i> =Greytown:	
A. F. Strout.....	2,000

AUG. 12.—By the <i>Seneca</i> =Mexico:	
H. Marquardt.....	200

AUG. 12.—By the <i>Alliance</i> =Colon:	
Hirzel, Feltman & Co.....	8,000
W. R. Grace & Co.....	3,610
G. Amsinck & Co.....	2,400
Flint, Eddy & Co.....	2,423
Munoz & Espriella.....	2,287
George R. Cottrell & Co.....	1,584
Piza, Nephews & Co.....	1,045
Dumarest & Co.....	832
George L. Rusby.....	760
D. A. De Lima & Co.....	730
J. Aparicio & Co.....	710
D. Nieto & Co.....	410
H. Marquardt & Co.....	404
A. M. Capen's Sons.....	879
A. N. Rotholz.....	340
Ascensio & Cassie.....	240
W. Loaliza & Co.....	145
Total.....	27,299

AUG. 17.—By the <i>Louisiana</i> =New Orleans:	
C. von Postan & Co.....	3,400
Gillespie Bros.....	1,000
Total.....	4,400

AUG. 18.—By the <i>Albena</i> =Cartagena:	
D. A. De Lima & Co.....	6,500
Funderford & Co.....	1,200
Schultz & Ruckhaber.....	1,000
Kunhardt & Co.....	200
For London.....	200
Hoadley & Co.....	500
Total.....	9,800

AUG. 18.—By the <i>Yumuri</i> =Mexico:	
E. Steiger & Co.....	1,000
H. Marquardt & Co.....	500
J. W. Wilson & Co.....	300
Thebaud Bros.....	200
Total.....	2,000

AUG. 20.—By the <i>Anerley</i> =Cape Gracias:	
Eggers & Heinlein.....	4,000
Lancaster & Co. (England).....	100
Total.....	4,100

AUG. 21.—By the <i>Advance</i> =Colon:	
G. Amsinck & Co.....	16,900
W. R. Grace & Co.....	5,125
A. Sartos.....	2,926
G. R. Cottrell & Co.....	2,340
Koldan & Van Sickle.....	1,000
Flint, Eddy & Co.....	1,383
Dumarest & Co.....	925
H. W. Peabody & Co.....	780
J. Menendez & Co.....	700
A. M. Capen's Sons.....	487
Total.....	32,576

AUG. 24.—By the <i>Adirondack</i> =Greytown:	
George R. Cottrell.....	300
Andreas & Co.....	380
G. Amsinck.....	1,540
Munoz & Espriella.....	4,400
A. F. Strout.....	10,900
Total.....	17,520

AUG. 24.—By the <i>El Norte</i> =New Orleans:	
Cerf, Hirsch & Co.....	2,000
W. H. Crossman & Bro.....	2,200
Total.....	4,400

AUG. 27.—By the <i>Fucatan</i> =Mexico:	
E. Steiger.....	100

AUG. 27.—By the <i>El Monte</i> =New Orleans:	
Albert T. Morse.....	2,300

AUG. 31.—By the <i>Finance</i> =Colon:	
George R. Cottrell & Co.....	800
F. Probst.....	900
S. A. De Lima.....	2,500
Total.....	3,200

Total Centrals for August.....	116,215
Total for July.....	231,044
Total Centrals for June.....	154,987
Total for May.....	260,926
Total for April.....	175,511
Total for March.....	167,924
Total for February.....	297,762
Total for January.....	339,937

FROM TRINIDAD, ETC.

	POUNDS.
AUG. 3.—By the <i>Grenada</i> =Bolivia:	
Jose Agostini.....	20,000
Thebaud Bros.....	2,000
Total.....	22,000

AUG. 8.—By the <i>Prins Willem IV</i> =Trinidad:	
Thebaud Bros.....	4,500

AUG. 15.—By the <i>Irawaddy</i> =Trinidad:	
Jose Agostini.....	18,060

AUG. 29.—By the <i>Prins Willem III</i> =Trinidad:	
Thebaud Bros.....	27,000

AFRICANS.

	POUNDS.
AUG. 5.—By the <i>Teutonic</i> =Liverpool:	
Albert T. Morse.....	600

AUG. 7.—By the <i>St. Louis</i> =Southampton:	
George A. Alden & Co.....	4,400

AUG. 7.—By the <i>Campania</i> =Liverpool:	
Reimers & Meyer.....	16,600
Sgal & Co.....	1,400
Total.....	12,000

AUG. 7.—By the <i>Augusta Victoria</i> =Hamburg:	
Windmuller & Roelker.....	4,200

AUG. 7.—By the <i>Prussia</i> =Hamburg:	
Reimers & Meyer.....	7,200

AUG. 8.—By the <i>Peninsular</i> =Lisbon:	
George A. Alden & Co.....	63,500

AUG. 14.—By the <i>St. Cuthbert</i> =Antwerp:	
George A. Alden & Co.....	16,300

AUG. 15.—By the <i>Umbria</i> =Liverpool:	
George A. Alden & Co.....	14,700
G. Amsinck & Co.....	11,000
Total.....	25,700

AUG. 21.—By the <i>Columbia</i> =Hamburg:	
Windmuller & Roelker.....	3,700

AUG. 28.—By the <i>Scandia</i> =Hamburg:	
George A. Alden & Co.....	8,300
Albert T. Morse.....	8,000
Reimers & Meyer.....	14,700
Total.....	31,000

Total Africans for August.....	168,600
Total for July.....	393,300
Total for June.....	693,800
Total for May.....	315,300
Total for April.....	315,300
Total for March.....	775,100
Total for February.....	316,300
Total for January.....	424,900

EAST INDIAN.

	POUNDS.
AUG. 5.—By the <i>Paris</i> =Southampton:	
Reimers & Meyer.....	1400

AUG. 5.—By the <i>Penalder</i> =Singapore:	
George A. Alden & Co. (Pontianak).....	152,300
Robert Soltan & Co.....	20,800
Robert Soltan & Co. (Pontianak).....	90,400
Total.....	263,500

AUG. 5.—By the <i>Mobile</i> =London:	
Reimers & Meyer.....	26,800

AUG. 10.—By the <i>Michigan</i> =London:	
Otto G. Mayer & Co. (Pontianak).....	106,300

AUG. 10.—By the <i>Nomadic</i> =Liverpool:	
George A. Alden & Co.....	2,100

AUG. 14.—By the <i>Hispania</i> =Hamburg:	
Robert Soltan & Co.....	10,000

AUG. 25.—By the <i>Mississippi</i> =London:	
Reimers & Meyer.....	8,200

Total East Indian for August.....	418,300
Total for July.....	130,900
Total for June.....	876,500
Total for May.....	522,400
Total for April.....	310,100
Total for March.....	265,900
Total for February.....	315,400

RECAPITULATION.

	POUNDS.
Pará—direct imports.....	872,500
Pará—via Europe.....	12,700
Centrals.....	187,715
Africans.....	168,600
East Indian.....	418,300

Total at New York for August.....	1,659,815
Total for July.....	1,280,587
Total for June.....	3,271,726
Total for May.....	3,271,311
Total for April.....	4,192,224
Total for March.....	2,840,862
Total for January.....	2,823,537

BOSTON ARRIVALS.

	POUNDS.
AUG. 3.—By the <i>Kansas</i> =Liverpool:	
Sgal & Co., Africans.....	2,000
AUG. 27.—By the <i>Virginian</i> =London:	
Reimers & Meyer, East India.....	5,000

Total at Boston for August.....	7,000
Total for July.....	419,180
Total for June.....	35,770
Total for May.....	69,890
Total for April.....	122,060
Total for March.....	209,601
Total for February.....	210,000
Total for January.....	72,900

NEW ORLEANS.

	POUNDS.	VALUE.
JULY.		
Nicaragua.....	36,855	\$19,898

	POUNDS.	VALUE.
AUGUST.		
Nicaragua.....	17,326	\$6,964

